DEPARTMENT OF THE ARMY

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1979

Submitted to Congress

JANUARY 1978

RESEARCH DEVELOPMENT, TEST AND EVALUATION, ARMY

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
APPROPRIATION LANGUAGE

Section 1

For expenses necessary for basic and applied scientific research, development, test, and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law; /$2,417,882,000, of which $13,481,000 shall be available for food research programs/ $2,721,400,000, to remain available for obligation until September 30, /1979/ 1980. (10 U.S.C. 2353, 4503; Department of Defense Appropriation Act, 1978; additional authorizing legislation to be proposed.)

Section 1 (Contd)

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

IDENTIFICATION CODE 21-2040-0-1-051

		BUDGET PLAN (AMOUNTS FOR RDT&E ACTIONS PROGRAMED)			OBLIGATIONS		
		1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	1979 EST.
	PROGRAM BY ACTIVITIES:						
	DIRECT:						
	1. TECHNOLOGY BASE	382,978	392,470	430,000	382,061	402,770	428,200
	2. ADVANCED TECHNOLOGY DEVELOPMENT	118,679	93,360	132,337	123,876	103,992	129,300
	3. STRATEGIC PROGRAMS	219,386	229,603	250,576	220,815	224,898	249,400
	4. TACTICAL PROGRAMS	1,162,212	1,294,560	1,449,970	1,194,352	1,316,709	1,444,400
	5. INTELLIGENCE AND COMMUNICATIONS	26,805	26,744	27,870	27,290	28,517	27,800
	6. PROGRAMWIDE MANAGEMENT AND SUPPORT	380,733	381,590	430,645	382,417	400,785	427,100
	TOTAL DIRECT	2,290,713	2,418,327	2,721,400	2,330,811	2,477,671	2,706,200
	REIMBURSABLE (TOTAL)	348,104	281,800	266,000	293,254	307,329	269,800
10.00	TOTAL	2,638,817	2,700,127	2,987,400	2,624,065	2,785,000	2,976,000
	FINANCING:						
	OFFSETTING COLLECTIONS FROM:						
11.00	FEDERAL FUNDS	-323,020	-281,550	-265,700	-309,692	-281,550	-265,700
13.00	TRUST FUNDS	-25,134	-10,000	.....	-25,100	-10,000	.....
14.00	NON-FEDERAL SOURCES	-1,047	-250	-300	-1,011	-250	-300
21.40	UNOBLIGATED BALANCE AVAILABLE, START OF YEAR:						
	FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	-205,004	-192,456	-107,503
	REPROGRAMING FROM OR TO PRIOR YEAR BUDGET PLANS	-5,918	.....	.....	.....	.....	.....
24.40	UNOBLIGATED BALANCE AVAILABLE, END OF YEAR:						
	FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	192,456	107,503	110,903
25.40	UNOBLIGATED BALANCE LAPSING	5,910	.....	.....	5,910	.....	.....
	BUDGET AUTHORITY	2,288,816	2,408,327	2,721,400	2,288,816	2,408,327	2,721,400
	BUDGET AUTHORITY:						
40.00	APPROPRIATION	2,288,816	2,417,882	2,721,400	2,288,816	2,417,882	2,721,400
41.00	TRANSFERRED TO OTHER ACCOUNTS	.....	-9,555	.....	.....	-9,555	.....
43.00	APPROPRIATION (ADJUSTED)	2,288,816	2,408,327	2,721,400	2,288,816	2,408,327	2,721,400
	RELATION OF OBLIGATIONS TO OUTLAYS:						
71.00	OBLIGATIONS INCURRED, NET				2,287,454	2,493,200	2,710,000
72.40	OBLIGATED BALANCE, START OF YEAR				630,596	846,224	1,035,424
74.40	OBLIGATED BALANCE, END OF YEAR				-846,224	-1,035,424	-1,170,424
77.40	ADJUSTMENTS IN EXPIRED ACCOUNTS				-2,638	.....	.....
90.00	OUTLAYS				2,069,189	2,304,000	2,575,000

Section 1 (Contd) PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS) 1976 FISCAL YEAR PROGRAM

IDENTIFICATION CODE 21-2040-0-1-051

		BUDGET PLAN (AMOUNTS FOR ROT+E ACTIONS PROGRAMED)			OBLIGATIONS		
		1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	19 T.
	PROGRAM BY ACTIVITIES:						
	DIRECT:						
	1. TECHNOLOGY BASE				7,294		
	2. ADVANCED TECHNOLOGY DEVELOPMENT				7,923		
	3. STRATEGIC PROGRAMS				546		
	4. TACTICAL PROGRAMS				19,666		
	5. INTELLIGENCE AND COMMUNICATIONS				1,248		
	6. PROGRAMWIDE MANAGEMENT AND SUPPORT				14,248		
10.00	TOTAL				50,925		
	FINANCING:						
21.40	UNOBLIGATED BALANCE AVAILABLE, START OF YEAR:						
	FOR COMPLETION OF PRIOR YEAR BUDGET PLANS				-53,388		
	REPROGRAMING FROM OR TO PRIOR YEAR BUDGET PLANS	-2,463					
25.40	UNOBLIGATED BALANCE LAPSING	2,463			2,463		
	BUDGET AUTHORITY						

Section 1 (Contd) PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS) 1977 FISCAL YEAR PROGRAM

IDENTIFICATION CODE 21-2040-0-1-051

		BUDGET PLAN (AMOUNTS FOR RDT+E ACTIONS PROGRAMED)			OBLIGATIONS		
		1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	1979 EST.
	PROGRAM BY ACTIVITIES:						
	DIRECT:						
	1. TECHNOLOGY BASE	.....	.....	.....	12,423	.....	.....
	2. ADVANCED TECHNOLOGY DEVELOPMENT	.....	.....	.....	3,963	.....	.....
	3. STRATEGIC PROGRAMS	.....	.....	.....	1,758	.....	.....
	4. TACTICAL PROGRAMS	.....	.....	.....	70,122	.....	.....
	5. INTELLIGENCE AND COMMUNICATIONS	.....	.....	.....	1,610	.....	.....
	6. PROGRAMWIDE MANAGEMENT AND SUPPORT	.....	.....	.....	14,424	.....	.....
	TOTAL DIRECT	.....	.....	.....	104,300	.....	.....
	REIMBURSABLE (TOTAL)	.....	.....	.....	30,479	.....	.....
10.00	TOTAL	.....	.....	.....	134,779	.....	.....
	FINANCING:						
	OFFSETTING COLLECTIONS FROM:						
11.00	FEDERAL FUNDS	.....	.....	.....	13,328	.....	.....
13.00	TRUST FUNDS	.....	.....	.....	26	.....	.....
14.00	NON-FEDERAL SOURCES	.....	.....	.....	36	.....	.....
21.40	UNOBLIGATED BALANCE AVAILABLE, START OF YEAR:						
	FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	-151,616	.....	.....
	REPROGRAMING FROM OR TO PRIOR YEAR BUDGET PLANS	-3,447	.....	.....	.....	.....	.....
25.40	UNOBLIGATED BALANCE LAPSING	3,447	.....	.....	3,447	.....	.....
	BUDGET AUTHORITY	.....	.....	.....	.....	.....	.....

Section 1 (Contd)

IDENTIFICATION CODE 21-2040-0-1-051

		BUDGET PLAN (AMOUNTS FOR ROT&E ACTIONS PROGRAMED)			OBLIGATIONS		
		1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	1979 EST.
	PROGRAM BY ACTIVITIES:						
	DIRECT:						
	1. TECHNOLOGY BASE	382,978	.....	.....	362,344	20,634	.....
	2. ADVANCED TECHNOLOGY DEVELOPMENT	116,679	.....	.....	111,990	6,689	.....
	3. STRATEGIC PROGRAMS	219,306	.....	.....	218,511	795	.....
	4. TACTICAL PROGRAMS	1,162,212	.....	.....	1,104,564	57,648	.....
	5. INTELLIGENCE AND COMMUNICATIONS	26,805	.....	.....	24,432	2,373	.....
	6. PROGRAMWIDE MANAGEMENT AND SUPPORT	380,733	.....	.....	353,745	26,988	.....
	TOTAL DIRECT	2,290,713	.....	.....	2,175,586	115,127	.....
	REIMBURSABLE (TOTAL)	348,104	.....	.....	262,775	77,329	.....
10.00	TOTAL	2,638,817	.....	.....	2,438,361	192,456	.....
	FINANCING:						
	OFFSETTING COLLECTIONS FROM:						
11.00	FEDERAL FUNDS	-323,820	.....	.....	-323,020	.....	.....
13.00	TRUST FUNDS	-25,134	.....	.....	-25,134	.....	.....
14.00	NON-FEDERAL SOURCES	-1,847	.....	.....	-1,847	.....	.....
21.40	UNOBLIGATED BALANCE AVAILABLE, START OF YEAR: FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	.....	-192,456	.....
24.40	UNOBLIGATED BALANCE AVAILABLE, END OF YEAR: FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	192,456	.....	.....
	BUDGET AUTHORITY	2,288,816	.....	.....	2,288,816	.....	.....

Section 1 (Contd) PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS) 1978 FISCAL YEAR PROGRAM

IDENTIFICATION CODE 21-2040-0-1-051	BUDGET PLAN (AMOUNTS FOR NOT-E ACTIONS PROGRAMED)			OBLIGATIONS		
	1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	1979 EST.
PROGRAM BY ACTIVITIES:						
DIRECT:						
1. TECHNOLOGY BASE	.....	392,470	.....	.....	382,670	9,800
2. ADVANCED TECHNOLOGY DEVELOPMENT	.....	93,360	.....	.....	91,360	2,000
3. STRATEGIC PROGRAMS	.....	229,603	.....	.....	224,103	5,500
4. TACTICAL PROGRAMS	.....	1,294,560	.....	.....	1,263,983	30,577
5. INTELLIGENCE AND COMMUNICATIONS	.....	26,744	.....	.....	26,144	600
6. PROGRAMWIDE MANAGEMENT AND SUPPORT	.....	381,590	.....	.....	374,284	7,306
TOTAL DIRECT	.....	2,418,327	.....	.....	2,362,544	55,783
REIMBURSABLE (TOTAL)	.....	281,800	.....	.....	230,000	51,800
10.00 TOTAL	.....	2,700,127	.....	.....	2,592,544	107,583
FINANCING:						
OFFSETTING COLLECTIONS FROM:						
11.00 FEDERAL FUNDS	.....	-281,550	.....	.....	-281,550	.....
13.00 TRUST FUNDS	.....	-10,000	.....	.....	-10,000	.....
14.00 NON-FEDERAL SOURCES	.....	-250	.....	.....	-250	.....
21.40 UNOBLIGATED BALANCE AVAILABLE, START OF YEAR: FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	.....	.....	-107,583
24.40 UNOBLIGATED BALANCE AVAILABLE, END OF YEAR: FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	.....	107,583	.....
BUDGET AUTHORITY	.....	2,408,327	.....	.....	2,408,327	.....
BUDGET AUTHORITY:						
40.00 APPROPRIATION	.....	2,417,882	.....	.....	2,417,882	.....
41.00 TRANSFERRED TO OTHER ACCOUNTS	.....	-9,555	.....	.....	-9,555	.....
43.00 APPROPRIATION (ADJUSTED)	.....	2,408,327	.....	.....	2,408,327	.....

BUDGET ACTIVITY DISTRIBUTION OF FY 1978 OBLIGATIONS REFLECTED ABOVE WAS CORRECTED SUBSEQUENT TO FINALIZATION OF PRESIDENT'S BUDGET. THESE CHANGES ARE NOT REFLECTED ON SUMMARY PAGE.

Section 1 (Contd) PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS) 1979 FISCAL YEAR PROGRAM

IDENTIFICATION CODE 21-2040-0-1-051

		BUDGET PLAN (AMOUNTS FOR ROTE ACTIONS PROGRAMED)			OBLIGATIONS		
		1977 ACT.	1978 EST.	1979 EST.	1977 ACT.	1978 EST.	197[redacted]
	PROGRAM BY ACTIVITIES:						
	DIRECT:						
	1. TECHNOLOGY BASE	.....	.....	430,000	.....	.....	418,400
	2. ADVANCED TECHNOLOGY DEVELOPMENT	.....	.....	132,337	.....	.....	127,388
	3. STRATEGIC PROGRAMS	.....	.....	250,578	.....	.....	243,908
	4. TACTICAL PROGRAMS	.....	.....	1,449,970	.....	.....	1,413,623
	5. INTELLIGENCE AND COMMUNICATIONS	.....	.....	27,870	.....	.....	27,200
	6. PROGRAMMIDE MANAGEMENT AND SUPPORT	.....	.....	430,645	.....	.....	419,794
	TOTAL DIRECT	.....	.....	2,721,400	.....	.....	2,650,417
	REIMBURSABLE (TOTAL)	.....	.....	266,000	.....	.....	218,000
10.00	TOTAL	.....	.....	2,987,400	.....	.....	2,868,417
	FINANCING:						
	OFFSETTING COLLECTIONS FROM:						
11.00	FEDERAL FUNDS	.....	.....	-265,700	.....	.....	-265,788
14.00	NON-FEDERAL SOURCES	.....	.....	-300	.....	.....	-300
24.40	UNOBLIGATED BALANCE AVAILABLE, END OF YEAR:						
	FOR COMPLETION OF PRIOR YEAR BUDGET PLANS	.....	.....	.....	.....	.....	[redacted]3
	BUDGET AUTHORITY	.....	.....	2,721,400	.....	.....	2,721,400

ARMY

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY

Section I (Contd)

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

IDENTIFICATION CODE 21-2040-0-1-051		1977 ACT.	1978 EST.	1979 EST.
	PERSONNEL COMPENSATION:			
11.1	PERMANENT POSITIONS	285,930	301,485	299,368
11.3	POSITIONS OTHER THAN PERMANENT	7,418	8,045	8,440
11.5	OTHER PERSONNEL COMPENSATION	3,057	3,105	3,146
	TOTAL PERSONNEL COMPENSATION	296,405	312,635	310,954
	DIRECT OBLIGATIONS:			
	PERSONNEL COMPENSATION	234,126	250,152	250,811
12.1	PERSONNEL BENEFITS: CIVILIAN PERSONNEL	23,160	24,086	24,148
21.0	TRAVEL AND TRANSPORTATION OF PERSONS	23,961	25,287	27,981
22.0	TRANSPORTATION OF THINGS	6,912	7,650	8,998
23.1	STANDARD LEVEL USER CHARGES	18,484	20,154	19,471
24.0	PRINTING AND REPRODUCTION	1,989	2,219	3,607
25.0	OTHER SERVICES:	1,922,030	2,045,519	2,230,769
	CONTRACTS	58,693	60,481	71,267
26.0	SUPPLIES AND MATERIALS	41,456	42,123	69,156
31.0	EQUIPMENT	2,330,811	2,477,671	2,706,208
	TOTAL DIRECT OBLIGATIONS			
	REIMBURSABLE OBLIGATIONS:	62,279	62,483	60,143
	PERSONNEL COMPENSATION	5,780	5,803	5,573
12.1	PERSONNEL BENEFITS: CIVILIAN PERSONNEL	6,289	6,584	6,290
21.0	TRAVEL AND TRANSPORTATION OF PERSONS	650	592	666
22.0	TRANSPORTATION OF THINGS	4,605	4,757	5,083
23.1	STANDARD LEVEL USER CHARGES	241	256	294
24.0	PRINTING AND REPRODUCTION	175,603	190,845	162,584
25.0	OTHER SERVICES:	22,670	22,679	16,413
	CONTRACTS	15,137	13,330	12,754
26.0	SUPPLIES AND MATERIALS	293,254	307,329	269,000
31.0	EQUIPMENT	2,624,065	2,785,000	2,976,000
	TOTAL REIMBURSABLE OBLIGATIONS			
99.0	TOTAL OBLIGATIONS			

PERSONNEL SUMMARY

TOTAL NUMBER OF PERMANENT POSITIONS	15,180	15,150	15,197
FULL-TIME EQUIVALENT OF OTHER POSITIONS	599	593	588
AVERAGE PAID EMPLOYMENT	14,845	14,754	14,630
AVERAGE GS GRADE	9.55	9.54	9.53
AVERAGE GS SALARY	20,367	21,707	21,668
AVERAGE SALARY OF UNGRADED POSITIONS	16,659	16,068	16,633

Section 2

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
PROGRAM ELEMENT LISTING
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PROGRAM ELEMENT LISTING
INTRODUCTION AND EXPLANATION OF CONTENTS

This section has been prepared for the purpose of providing summary program element budget information concerning the US Army Research, Development, Test, and Evaluation Program. The listing is preceded by three summaries: the first by Research Categories (Program), the second by Budget Activities, and the third by FYDP Programs.

A separate document, Descriptive Summaries, furnishes detail by project. In addition, it furnishes narrative information on all Research, Development, Test, and Evaluation (RDTE) program elements and projects of $5.0 million or more. The index number in the right-hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries. The funding information used in these volumes corresponds to that contained in the President's Budget.

A direct comparison of FY 1977, FY 1978, FY 1979, and FY 1980 data in this Program Element Listing with data shown in the Program Element Listing dated January 1977 will reveal significant differences. Many of the differences are attributable to the following factors:

a. Restructuring of the FY 1977 and FY 1978 programs for comparability to the FY 1979 program structure.

b. Reclassification to provide greater visibility and contribute to the effective management of the RDTE program such as the following:

(1) RDTE Headquarters Management
(2) Joint Tactical Command and Control Communications
(3) Aircraft Electronic Warfare Self Protection Systems
(4) Further extension of the Single Program Element Funding Concept.

c. An FY 1978 net reduction of $9.555 million resulting from the manpower/space reduction imposed by Congress.

DEPARTMENT OF THE ARMY
FY 1979 R D T & E PROGRAM

EXHIBIT R-1

SUMMARY

DATE: 23 JAN 1978

THOUSANDS OF DOLLARS

	FY 1977	FY 1978	FY 1979	FY 1980
SUMMARY RECAP OF RESEARCH CATEGORIES				
RESEARCH	98,487	102,941	115,700	134,300
EXPLORATORY DEVELOPMENT	284,491	289,529	314,300	333,100
ADVANCED DEVELOPMENT	435,685	479,362	716,993	855,802
ENGINEERING DEVELOPMENT	1,808,868	1,859,835	1,868,800	1,861,866
MANAGEMENT AND SUPPORT	375,342	375,639	417,252	473,193
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,194,813	2,306,586	2,624,245	2,858,261
OPERATIONAL SYSTEMS DEVELOPMENT	96,788	111,821	97,155	99,777
TOTAL RESEARCH DEVELOPMENT TEST & EVAL, ARMY	2,298,713	2,418,327	2,721,488	2,958,038
SUMMARY RECAP OF BUDGET ACTIVITIES				
TECHNOLOGY BASE	382,978	392,478	438,800	467,488
ADVANCED TECHNOLOGY DEVELOPMENT	118,679	93,368	132,337	194,584
STRATEGIC PROGRAMS	219,386	229,683	258,578	268,672
TACTICAL PROGRAMS	1,162,212	1,294,568	1,449,978	1,482,934
INTELLIGENCE AND COMMUNICATIONS	26,805	26,744	27,878	49,645
PROGRAMWIDE MANAGEMENT AND SUPPORT	388,733	381,598	438,645	494,883
TOTAL RESEARCH DEVELOPMENT TEST & EVAL, ARMY	2,298,713	2,418,327	2,721,488	2,958,038
SUMMARY RECAP OF FYDP PROGRAMS				
GENERAL PURPOSE FORCES	81,457	93,871	79,821	66,881
INTELLIGENCE AND COMMUNICATIONS	15,243	17,958	18,134	32,976
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	2,194,813	2,306,506	2,624,245	2,858,261
TOTAL RESEARCH DEVELOPMENT TEST & EVAL, ARMY	2,298,713	2,418,327	2,721,488	2,958,038

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL, ARMY DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 1980
1	61101A	IN-HOUSE LAB INDEPENDENT RESEARCH	1	1	14,545	14,722	16,800	17,500
2	61102A	DEFENSE RESEARCH SCIENCES	1	7	83,942	88,219	99,700	116,000
3	62105A	MATERIALS	1	39	9,879	11,285	11,275	12,015
4	62111A	ATMOSPHERIC INVESTIGATIONS	1	44	3,989	5,348	5,703	6,100
5	62120A	FUZE, NUCLEAR WPNS EFFECTS, FLUIDICS	1	48	7,083	8,275	5,788	7,124
6	62201A	AIRCRAFT WEAPONS TECHNOLOGY	1	52	1,613	1,227	1,918	1,586
7	62202A	AIRCRAFT AVIONICS TECHNOLOGY	1	55	4,362	5,858	5,768	5,769
8	62209A	AERONAUTICAL TECHNOLOGY	1	58	15,877	15,344	15,659	17,371
9	62210A	AIRDROP TECHNOLOGY	1	62	768	1,155	1,208	1,888
10	62303A	MISSILE TECHNOLOGY	1	65	27,744	26,276	30,126	27,949
11	62601A	TANK AND AUTOMOTIVE TECHNOLOGY	1	78	6,767	6,378	10,262	10,770
12	62603A	LARGE CAL AND NUCLEAR TECHNOLOGY	1	81				
13	62606A	ADV CONCEPTS LAB (TACOM) (N)	1	-	935			
14	62617A	SMALL CAL AND FIRE CNTRL TECHNOLOGY	1	85	12,836	10,523	9,473	6,851
15	62618A	BALLISTICS TECHNOLOGY	1	88	18,133	17,587	18,389	17,570
16	62622A	CHEMICAL MUNITIONS/CHEMICAL CMBT SPT	1	92	3,582	3,228	5,231	4,681
17	62701A	COMMUNICATIONS ELECTRONICS	1	96	4,675	5,698	7,257	6,958
18	62703A	CMBT SURV TARGET ACQ + IO	1	100	4,843	4,248	5,239	6,168
19	62704A	MIL ENVIRONMENTAL CRITERIA DEV	1	104	2,858	3,048	3,387	3,688
20	62705A	ELECTRONICS AND ELECTRON DEVICES	1	108	10,945	12,788	13,678	16,826
21	62706A	CHEM BIOLOGICAL DEFENSE+GENL INVEST	1	113	11,998	9,611	9,686	13,891
22	62707A	MAPPING - GEODESY	1	116	3,258	4,904	4,288	4,615
23	62709A	NIGHT VISION INVESTIGATIONS	1	120	5,853	4,858	6,863	5,623

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY	SEC
24	62715A	TAC EW TECHNOLOGY	1	123					
25	62716A	HUMAN FACTORS IN MIL SYSTEMS	1	129	3,716	3,950	5,922	7,271	U
26	62717A	ARMY PERSONNEL MANPOWER TECH	1	133	1,971	3,000	4,392	4,696	U
27	62719A	MOBILITY AND WEAPONS EFFECTS TECH	1	136	2,631	3,855	4,915	5,286	U
28	62720A	ENVIRONMENTAL QUALITY TECH	1	140	11,720	7,477	9,448	10,459	U
29	62722A	ARMY TRAINING TECHNOLOGY	1	144	3,548	4,000	5,166	4,354	U
30	62723A	CLOTHING/EQUIP/PACKAGING TECH	1	147	2,276	3,025	3,450	3,930	U
31	62724A	FOOD TECHNOLOGY	1	150	9,277	7,969	8,327	8,053	U
32	62725A	COMPUTER AND INFORMATION SCIENCE	1	154	2,180	2,009	2,516	3,000	U
33	62726A	ARMY SUPPORT DARPA-HOWLS	1	159	970	3,000	3,000	1,500	U
34	62727A	NON-SYSTEM TRAINING DEVICES	1	162	2,425	2,058	2,750	[redacted]	U
35	62730A	COLD REGIONS ENGINEERING TECHNOLOGY	1	165	2,591	2,910	3,072	3,670	U
36	62731A	MILITARY FACILITIES ENGINEERING TECHNOLOGY	1	168	3,955	2,000	3,500	4,000	U
37	62732A	RPV SUPPORTING TECHNOLOGY	1	173	1,455	1,500	2,375	3,000	U
38	62733A	MOBILITY EQUIPMENT TECHNOLOGY	1	176	9,129	9,870	9,714	10,600	U
39	62734A	MED DEFENSE AGAINST CHEM AGENTS	1	180	5,504	6,448	6,027	5,639	U
40	62770A	MIL INFECT DISEASE TECHNOLOGY	1	183	14,801	15,030	15,154	15,250	U
41	62771A	MIL PSYCHIATRY AND MICROWAVE INJURY	1	192	2,899	2,628	2,917	3,242	U
42	62772A	RECOVERY FROM INJURY	1	195	7,212	7,471	3,790	1,445	U
43	62773A	HELICOPTER COMBAT CREW ABN MEDICINE	1	199	1,839	3,476	2,211	2,450	U
44	62774A	MILITARY BURN TECHNOLOGY	1	202	747	657	717		U
45	62775A	COMBAT MAXILLOFACIAL INJURY	1	204	1,848	1,155	1,260	[redacted]	U
46	62776A	MED DEF AGAINST BIOLOGICAL AGENTS	1	207	6,453	7,663	7,564	8,891	U

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 1980
47	62777A	MILITARY ENVIRONMENTAL STRESS	1	210	2,287	2,321	4,552	2,925
48	62778A	COMBAT MEDICAL MATERIEL	1	213	1,272	1,482	1,531	1,628
49	62779A	TEST MEAS DIAGNOSTIC EQUIP TECH	1	216	450	585	435	700
50	62780A	MEDICAL SYSTEMS IN CHEMICAL DEFENSE	1	219			1,800	3,600
51	62781A	MILITARY ENERGY TECHNOLOGY	1	221			2,200	2,800
		TECHNOLOGY BASE			382,978	392,470	438,800	467,488
52	63102A	MATERIALS SCALE-UP	2	224	1,152	2,382	2,826	3,388
53	63103A	FLUIDICS	2	-				500
54	63201A	AIRCRAFT POWER PLANTS AND PROPULSION	2	227	3,633	3,867	7,000	10,905
55	63206A	AIRCRAFT WEAPONS	2	233	2,082	1,577	100	1,375
56	63207A	AIRCRAFT AVIONICS EQUIPMENT	2	236	1,986	1,668	1,304	2,375
57	63209A	AIR MOBILITY SUPPORT	2	239	1,588	1,278	672	1,928
58	63211A	ADVANCED VTOL	2	243	3,986	1,928	3,352	10,866
59	63212A	TILT ROTAR RESEARCH AIRCRAFT	2	246	2,393	2,321	1,250	
60	63213A	ROTOR SYSTEMS RESEARCH AIRCRAFT (H)	2	-	1,999	582		
61	63216A	SYNTHETIC FLIGHT SIMULATORS	2	249	882	1,084	400	4,798
62	63306A	TERMINAL HOMING SYSTEMS	2	252	2,801		4,100	9,305
63	63313A	MSL/ROCKET COMPONENTS	2	255	6,247	3,677	1,344	3,488
64	63314A	HI-ENERGY LASER COMPONENTS	2	259	21,800	13,538	17,292	19,000
65	63602A	ADVANCED LAND MOB SYSTEMS CONCEPTS	2	267	2,917	2,000	22,000	11,784
66	63604A	NUCLEAR MUNITIONS AND RADIACS	2	274				
67	63606A	LANDMINE WARFARE	2	277	2,452	1,813	8,698	7,157
68	63607A	ARMY SMALL ARMS PROGRAM	2	280	4,669	695	1,215	253

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY [redacted]	SEC
69	63613A	ADVANCED FUZE DESIGN	2	283	516	825	1,822	1,879	U
70	63614A	INCAPACITATING CHEMICAL MUN CONCEPTS	2	287	120		554	1,134	U
71	63615A	LETHAL CHEMICAL MUNITIONS CONCEPTS	2	290	297	268	721	1,353	U
72	63619A	COUNTERMINE & BARRIERS	2	293	2,524	2,485	2,836	3,990	U
73	63621A	VEHICLE ENGINE DEVELOPMENT	2	296	4,610	3,529	3,051	6,600	U
74	63702A	ELECTRIC POWER SOURCES	2	298	4,336	2,709	4,535	6,008	U
75	63710A	NIGHT VISION ADVANCED DEVELOPMENT	2	301	13,651	11,031	8,437	18,300	U
76	63719A	SPECIAL PURPOSE DETECTORS	2	304	1,390		900	3,300	U
77	63720A	BIOLOGICAL DEFENSE MATERIEL	2	-				3,803	U
78	63721A	CHEMICAL DEFENSE MATERIEL CONCEPTS	2	306	4,134	3,517	10,792	1[redacted]	U
79	63725A	REMOTELY PILOTED VEHICLES/DRONES	2	309	5,588	9,211	2,191	3,[redacted]	U
80	63731A	MIL PERS PERFORMANCE DEVELOPMENT	2	313	4,543	4,024	4,786	6,431	U
81	63732A	COMBAT MEDICAL MATERIAL (ADV)	2	316	88	94	106	113	U
82	63733A	ENVIRONMENTAL QUALITY CNTRL EQ (M)	2	-	190				U
83	63734A	MILCON/ENGINEERING (M)	2	-					
84	63736A	NON-SYSTEM TRAINING DEVICES	2	318	2,844	5,160	5,300	9,700	U
85	63741A	METEOROLOGIC EQUIPMENT DEVELOPMENT	2	321	1,200	1,137	590	1,200	U
86	63742A	ADV ELECTRONIC DEVICES DEV	2	324		1,227	768	1,353	U
87	63743A	TNG AND UTILIZATION IN MIL SYSTEMS	2	328	5,252	5,600	7,848	10,389	U
88	63744A	ARMY CONTEMPORARY ISSUES DEV	2	331	209	485	450	503	U
89	63747A	SOLDIER SUPPORT SURVIVABILITY	2	333	1,231	1,797	2,527	[redacted]	U
90	63748A	ADV TECH FOR AUTOMATIC TEST EQUIP	2	336	3,197	768	2,847	6,[redacted]	U

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

THOUSANDS OF DOLLARS

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	FY 1977	FY 1978	FY 1979	FY 1980
91	63758A	DRUG AND VACCINE DEVELOPMENT	2	340			1,000	1,639
		ADVANCED TECHNOLOGY DEVELOPMENT			118,679	93,360	132,337	194,584
92	63304A	DND ADVANCED TECHNOLOGY	3	342	102,664	107,297	113,510	120,855
93	63308A	BALLISTIC MSL DEF SYS TECH	3	345	100,000	106,100	114,000	120,840
94	63735A	WWMCCS ARCHITECTURE	3	348	9	556	700	811
95	64603A	NUCLEAR MUNITIONS	3	351				
96	65708A	THEATER NUCLEAR FORCE SURVIVABILITY	3	-	1,878	1,373		
97	32053A	NMCS WIDE SUPPORT COMMUNICATIONS	3	358		2,614	4,600	4,800
98	33145A	EUCOM C3 SYSTEMS	3	361				
		STRATEGIC PROGRAMS			219,306	229,603	258,578	268,672
99	63215A	JOINT SURVIVABILITY INVESTIGATIONS	4	365	475	581	600	600
100	63301A	DIVISION AIR DEFENSE (DIVAD) GUN	4	368	2,178	16,973	75,717	23,119
101	63303A	SURF-TO-SURF MSL ROCKET SYS	4	374	6,869	46,445	70,800	74,200
102	63307A	AD SUPPRESSION MISSILE	4	385	499		5,000	10,826
103	63316A	HELIBORNE MSL GUIDANCE TECHNOLOGY	4	-				3,411
104	63317A	GRASS BLADE	4	389	9,815	13,459	27,200	18,279
105	63318A	ARMY-NAVY AREA SAM	4	390	1,300	3,292	5,300	6,000
106	63319A	CONVENTIONAL AIRFIELD ATTACK MISSILE	4	393		1,484	5,000	2,000
107	63320A	ASSAULT BREAKER	4	396			10,300	
108	63403A	NAVSTAR GLOBAL POSITIONING SYS	4	-	7,518	1,550		
109	63600A	WEAPONS AND AMMUNITION	4	398	2,917	4,791	500	445
110	63612A	ADVANCED MULTI-PURPOSE MISSILE	4	401		1,936	4,100	32,200

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

THOUSANDS OF DOLLARS

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	FY 1977	FY 1978	FY 1979	FY 1	S E C
111	63616A	TANK GUN COOPERATIVE DEVELOPMENT	4	407	2,050	1,400	8,100	35,800	U
112	63624A	MOBILITY	4	414			1,753 [1]	10,248	U
113	63627A	COMBAT SUPPORT MUNITIONS	4	417	2,777	1,985	2,346	3,528	U
114	63628A	FILED ARTILLERY AMMO DEV	4	420	1,774	3,970	7,473	9,514	U
115	63629A	FIELD ARTILLERY CANNON SYSTEMS	4	426	310	1,867	7,835	8,333	U
116	63630A	ADV MECH INF CMBT VEH STUDIES	4	-		2,500			U
117	63704A	UNATTENDED GROUND SENSORS	4	-	2,958	718			U
118	63705A	PHYSICAL SECURITY	4	431			3,500	3,503	U
119	63706A	IFF DEVELOPMENTS	4	434	1,064	544	3,463	7,185	U
120	63707A	COMMUNICATIONS DEVELOPMENT	4	437	2,917	2,527	9,754	1[redacted]	U
121	63711A	AIRCRAFT EW SELF-PROTECTIVE EQUIPMENT	4	440					
122	63712A	MAPPING AND GEODESY	4	443	929	143	4,282	4,631	U
123	63722A	TACTICAL OPERATIONS SYSTEM (TOS)	4	446	4,240	6,777	100	100	U
124	63723A	COMMAND AND CONTROL	4	449	18,386	8,257	18,984	19,759	U
125	63726A	COMBAT SUPPORT EQUIPMENT	4	454	3,568	3,464	8,486	16,806	U
126	63738A	TACTICAL SURVEILLANCE SYSTEM	4	458					
127	63737A	ANTI-RADIATION MSL COUNTER MEASURES	4	460	2,387	3,481	4,292	5,345	C
128	63740A	DIVISIONAL AIR DEFENSE COMD/CNTRL	4	463	65		500	500	U
129	63745A	TAC ELECTRONICS WARFARE SYS	4	466					
130	63746A	SINGLE CHANNEL GRO/ABN RADIO SUB-SYS	4	474	3,450	8,151	12,721	22,200	U
131	63749A	TECHNICAL VULNERABILITY REDUCTION	4	479			2,000	[redacted]	U
132	63755A	TAC ELEC C/M SYS	4	482					
133	64201A	AIRCRAFT AVIONICS	4	486	3,760	2,775	6,359	5,669	U

THOUSANDS OF DOLLARS

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	FY 1977	FY 1978	FY 1979	FY 1980
134	64202A	AIRCRAFT WEAPONS	4	489	3,893	15,751	10,460	5,382
135	64203A	AERIAL SCOUT	4	495			5,487	41,480
136	64204A	AIR MOBILITY SUPPORT EQUIPMENT	4	500	1,151	829	1,095	1,595
137	64206A	UTIL TAC TRANS ACFT SYS (UTTAS)	4	503	74,778	37,935	2,972	
138	64207A	ADVANCED ATTACK HELICOPTER	4	509	138,816	164,070	177,449	172,027
139	64212A	COBRA TOW	4	516	7,150	14,398	10,027	2,000
140	64213A	CH-47 MODERNIZATION	4	520	25,895	32,822	19,540	10,146
141	64215A	COMPOSITE ROTOR BLADES	4	527		211	2,582	6,500
142	64217A	SYNTHETIC FLIGHT TRAINING SYSTEMS	4	529	5,363	5,671	4,590	13,497
143	64302A	AIR DEFENSE CNTRL COORD SYS (H)	4	-	618			
144	64306A	STINGER	4	532	27,348	11,957	24,582	17,576
145	64307A	PATRIOT (SAM-D)	4	540	179,953	216,423	228,392	122,210
146	64308A	PRECISION LASER DESIGNATOR	4	554	6,350	4,091	12,593	4,400
147	64309A	ROLAND	4	561	85,881	75,403	22,663	6,210
148	64310A	HELIBORNE MISSILE-HELLFIRE	4	567	19,164	50,482	65,050	64,506
149	64311A	PERSHING II	4	574				
150	64601A	INFANTRY SUPPORT WEAPONS	4	579	1,899	3,629	7,015	7,005
151	64602A	WEAPONS + AMMUNITION	4	582	8,201	2,052	5,552	6,477
152	64605A	FLD ARTY WPNS/AMMO (105MM)	4	586	5,520	1,617	1,111	4,569
153	64606A	EXPLOSIVE DEMOLITIONS	4	589	222	95	2,063	2,115
154	64608A	ARMY SMALL ARMS PROGRAM	4	592	832	1,000	1,575	1,460
155	64609A	COMBAT SUPPORT SYSTEMS	4	595	2,340	2,520	2,240	3,565
156	64610A	LETHAL CHEMICAL MUNITIONS	4	598	2,056	2,734	213	1,007

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY [redacted]	SEC
157	64812A	COUNTERMINE AND BARRIERS	4	601	4,921	4,756	9,738	15,586	U
158	64613A	INCAPACITATING CHEMICAL MUNITIONS	4	-				2,835	U
159	64614A	FLD ARTY WPNS/AMMO (155MM)	4	607	3,432	3,495	18,535	10,468	U
160	64615A	TANK THERMAL SIGHT	4	618	8,298	2,451	1,846		U
161	64616A	INFANTRY FIGHTING VEHICLE	4	621	29,323	33,563	28,875	20,555	U
162	64617A	VEH RAPID FIRE WPN SYSTEM-BUSHMASTER	4	622	20,800	12,165	7,180	4,872	U
163	64619A	LANDMINE WARFARE	4	623	9,080	7,781	14,886	19,799	U
164	64620A	TANK SYSTEMS	4	629	98,698	117,645	78,376	31,578	U
165	64621A	COPPERHEAD	4	636	38,080	35,999	12,983	5,231	U
166	64623A	VIPER	4	642	12,406	6,515	6,283	[redacted]	U
167	64626A	FORWARD OBSERVER VEHICLE	4	646	5,999	807	3,708	388	U
168	64627A	FLD ARTY WPNS/AMMO, 8-INCH	4	649	1,866	1,748	687	2,581	U
169	64628A	INDIRECT FIRE TRAINING MUNITIONS	4	652			2,501	246	U
170	64629A	CAVALRY FIGHTING VEHICLE	4	-	3,978	2,173	1,384	331	U
171	64701A	COMM ENGINEERING DEV	4	656	5,866	9,659	6,965	6,827	U
172	64704A	UNATTENDED GROUND SENSORS	4	660	7,308	7,094	8,690	11,088	U
173	64706A	RADIOLOGICAL DEFENSE EQUIPMENT	4	663	676	773	1,055	915	U
174	64709A	IFF EQUIPMENT	4	666			1,000	1,316	U
175	64710A	NIGHT VISION DEVICES	4	669	2,342	2,638	3,812	5,433	U
176	64711A	AIRCRAFT EW SELF-PROTECTION SYSTEMS	4	672					
177	64712A	JT ADV TAC COMD/CNTRL/COMM PROG	4	680	5,581	1,300	1,500	[redacted]	U
178	64714A	TACTICAL ELECTRICAL POWER SOURCES	4	681	2,368	150	3,827	7,[redacted]	U
179	64716A	MAPPING AND GEODESY	4	686	2,543	2,853	[redacted]	925	U

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY

DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 1980
180	647178	GENERAL COMBAT SUPPORT	4	689	2,782	3,468	6,186	18,912
181	647188	PHYSICAL SECURITY	4	693	675	2,813	5,488	4,341
182	647238	SPECIAL PURPOSE DETECTORS	4	697	3,284	1,637	2,327	475
183	647248	BIOLOGICAL DEFENSE MATERIEL	4	700	3,647	3,686	3,287	2,678
184	647258	CHEMICAL DEFENSE MATERIEL	4	702	2,931	4,714	6,128	18,682
185	647278	COMMAND AND CONTROL	4	705	6,346	8,571	7,227	12,366
186	647288	F/MILY OF MIL ENGR CONSTR EQ (FAMECE)	4	710	6,691	4,672	2,275	1,888
187	647298	COUNTER MORTAR RADAR	4	713	6,742	4,226	4,381	2,858
188	647308	REMOTELY PILOTED VEHICLES	4	717			22,883	32,455
189	647318	COUNTER BATTERY RADAR	4	720	11,375	11,339	6,849	2,483
190	647488	TACTICAL SURVEILLANCE SYSTEM	4	727				
191	647458	TAC ELECTRONIC WARFARE SYS	4	729				
192	647468	AUTOMATIC TEST SUPPORT SYSTEMS	4	-	1,515	3,886		5,849
193	647488	STANDOFF TARGET ACQUISITION SYSTEM	4	737	8,913	12,925	36,883	27,181
194	647498	TACTICAL OPERATIONS SYSTEMS	4	744			36,772	51,482
195	647508	TAC ELEC C/M SYS	4	749				
196	647768	NAVSTAR GLOBAL POS SYS (USER EQ)	4	756		5,513	9,509	7,783
197	647798	JT INTEROP OF TAC CMD & CONT SYS (JINTACCS)	4	759		4,262	13,528	18,572
198	657818	COMM ELECTRONICS TESTING ACTYS	4	-	3,553	761		
199	657188	JOINT CB CONTACT POINT AND TEST	4	766				

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 1980	SEC
200	65713A	BATTLEFIELD SYSTEMS INTEGRATION	4	769	3,724	3,951	17,000	6,000	U
201	23710A	SHILLELAGH (LBR) MSL SYS (M)	4	-	1,899				U
202	23724A	HV ANTI-TANK ASSAULT WPN SYS (TOW)	4	772	2,769	544	3,560	993	U
203	23726A	TAC FIRE DIR SYS (TACFIRE)	4	779	4,942	828	744		U
204	23727A	MED ANTI-TANK ASSAULT WPN (DRAGON)	4	787	4,804	2,836	407		U
205	23730A	CHAPPARAL	4	797	6,880	4,229	100		U
206	23731A	SAM HAWK/HAWK IMP PROG	4	807	18,722	12,538	3,143	6,593	U
207	23732A	VULCAN (M)	4	-	538				U
208	23733A	LANCE (MML) WARHEAD	4	814	1,850	4,218	5,921	3,800	U
209	23735A	M60A1 TANK PRODUCT IMP PROG	4	822	4,111	9,831	9,996	1	U
210	28010A	JT TACTICAL COMM PROG (TRI-TAC)	4	829	36,622	58,847	55,210	42,715	U
		TACTICAL PROGRAMS			1,162,212	1,294,568	1,449,970	1,482,934	
211	64713A	COMBAT FEEDING, CLOTHING AND EQUIPMENT	5	848	4,951	5,283	1,385	3,080	U
212	64715A	NON-SYSTEM TNG DEVICES ENGR	5	851	7,698	8,192	10,806	12,916	U
213	64726A	METEOROLOGICAL EQUIPMENT SYSTEMS	5	855	242	184	3,289	6,223	U
214	65802A	INTL COOPERATIVE RESEARCH AND DEV	5	858	456	581	600	600	U
215	31822A	SCIENTIFIC AND TECH INTELLIGENCE	5	861	— —	— —	— —		
216	33142A	SATCOM GROUND ENVIRONMENT	5	864	8,274	8,688	7,697	28,802	U

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST & EVAL, ARMY DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 1980
217	33401A	COMSEC	5	869				
		INTELLIGENCE AND COMMUNICATIONS			26,885	26,744	27,870	49,645
218	63315A	TARGET MISSILES	6	873				
219	63718A	EW VULNERABILITY/SUSCEPTIBILITY	6	876				
220	65101A	STUDIES AND ANALYSES	6	884	3,800	3,330	4,460	4,100
221	65102A	TRADOC STUDIES AND ANALYSES	6	888	2,425	2,500	2,600	3,900
222	65201A	AVIATION ENGINEERING FLIGHT ACTIVITY	6	892	3,110	3,001	3,785	5,362
223	65301A	KWAJALEIN MISSILE RANGE	6	894	82,054	82,239	87,620	93,800
224	65702A	SUPPORT OF DEVELOPMENT TESTING	6	897	15,412	16,452	20,453	21,624
225	65706A	MATERIAL SYSTEMS ANALYSIS	6	905	8,557	8,715	9,700	11,000
226	65707A	SUPPORT OF USER TESTING, TRADOC	6	908	17,300	14,000	19,991	22,254
227	65709A	EXPLOITATION OF FOREIGN ITEMS	6	914	2,502	945	1,500	1,500
228	65712A	SUPPORT OF USER TESTING, OTEA	6	917	6,890	7,501	7,200	7,755
229	65714A	FOREIGN WEAPONS EVALUATION	6	922	1,026	944	2,700	2,700
230	65801A	PROGRAM-WIDE ACTIVITIES	6	925	43,864	44,942	46,300	66,931
231	65803A	TECHNICAL INFO ACTIVITIES	6	933	3,673	3,426	4,559	5,600
232	65804A	MAJOR R&D T&E FACILITIES (DARCOM)	6	936	152,630	159,935	166,000	185,141
233	65805A	DOD MUNITIONS EFFECT/EXPLOSIVE SAFETY STAND	6	955	5,377	4,416	5,036	7,236

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DATE: 23 JAN 1978

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	DESCRIPTIVE SUMMARY PAGE NUMBER	THOUSANDS OF DOLLARS FY 1977	FY 1978	FY 1979	FY 198
234	65898A	MGT HQ (RESEARCH & DEV)	6	959	16,290	16,358	26,879	26,83
		PROGRAMWIDE MANAGEMENT AND SUPPORT			388,733	381,598	430,645	494,80
TOTAL		RESEARCH DEVELOPMENT TEST & EVAL, ARMY			2,290,713	2,418,327	2,721,440	2,958,83

Section 3

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
PERFORMER DISTRIBUTION
($ in Thousands)

Appropriation: Research, Development, Test, and Evaluation, Army

	Total Obligational Authority			
	FY 1977	FY 1978	FY 1979	FY 1980
1. For operation of installations of the reporting DOD Component Government operated	666,082	689,744	741,522	800,213
2. For operation of installations of the reporting DOD Component Contractor operated	53,509	55,265	56,185	58,850
3. For contracts directly in support of work actually performed at installations of the reporting DOD Component.	30,056	30,051	35,479	40,813
4. For work assigned to other Department of Defense activities	206,736	208,474	227,218	222,322
5. For work assigned to activities of other Government agencies	36,889	31,399	23,142	24,241
6. For work performed by industrial contractors ("profit" organizations).	1,224,909	1,328,610	1,549,416	1,720,138
7. For work performed by educational institutions.				
a. Designated Fed Contract Res Centers	13,332	13,097	13,763	13,966
b. Other Institutions.	41,640	44,234	52,285	54,266
8. For work performed by other "non-profit" organizations				
a. Designated Fed Contract Res Centers	4,658	5,579	7,455	7,820
b. Other Institutions.	12,902	11,874	14,935	15,409
9. Total Research, Development, Test, and Evaluation, Army Appropriation.	2,290,713	2,418,327	2,721,400	2,958,038

Section 4

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
INSTALLATION ANALYSIS - IN-HOUSE

This installation analysis indicates the resources of dollars and manpower utilized by Army installations in the accomplishment of the in-house research, development, test, and evaluation effort, including contractor operated installations, under the management control of the Army. Installations reported include both installations classified as research, development, or test installations and research, development, or test units located at multi-mission installations. Funds being reported cover both direct costs and indirect or support costs. These funds are a part of project costs shown in the budget for the various projects. The amounts reflected under the category "RDTE Funds" include funds received directly through command channels, and reimbursable RDTE effort performed for other Army activities and other Department of Defense agencies. "All Other Funds" reflect the in-house effort at multi-mission installations for other than Research, Development, Test, and Evaluation, Military Construction and Military Personnel costs. Military Personnel costs reflect those military personnel assigned to RDTE activities and other military personnel located at the installation in support of non-RDTE activities at multi-mission posts.

The personnel reflected are reported in terms of man years utilized as opposed to the number of personnel spaces. Spaces assigned to support Army RDTE effort are divided between spaces charged directly to the RDTE appropriation as reflected in the personnel summary and spaces assigned to the Army Industrial Fund and indirectly charged to the RDTE appropriation. Contractor personnel shown are engaged in direct support or operation of Army installations.

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* Formerly Artic Test Center

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	Other Army	Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Industrial Fund Installations																	
1.																	
Aberdeen	77	96,550	20,058	3,093	12,990	132,691	6,355	25	139,071	3,323	36	62	-	-	500	2	3,923
Proving	78	94,461	18,316	2,981	12,615	128,373	5,980	26	134,379	3,107	34	62	-	-	453	2	3,658
Ground, Aber-	79	106,994	18,142	2,981	12,606	140,723	6,180	27	146,930	3,178	33	62	-	-	455	2	3,730
deen, Maryland	80	110,602	18,133	2,951	12,646	144,332	6,183	27	150,542	3,178	33	62	-	-	455	2	3,730
2.																	
Armament	77	387	-	5	-	392	-	-	392	4	-	-	-	-	-	-	4
Readiness	78	300	-	-	-	300	-	-	300	4	-	-	-	-	-	-	4
Command (Pro-	79	148	-	-	-	148	-	-	148	4	-	-	-	-	-	-	4
ject Manager	80	80	-	-	-	80	-	-	80	4	-	-	-	-	-	-	4
M110E2 only), Rock Island, Illinois																	
3.																	
Armament	77	31,240	32,780	5,567	56,548	126,135	1,195	25	127,355	2,715	79	8	-	-	94	2	2,898
Research &	78	46,260	17,217	2,529	59,316	125,322	1,399	26	126,747	3,016	35	8	-	-	106	2	3,167
Development	79	47,097	18,911	2,372	59,735	128,115	1,413	27	129,555	3,018	34	8	-	-	104	2	3,166
Command,	80	49,458	18,911	2,372	59,735	130,476	1,413	27	131,916	3,019	33	8	-	-	104	2	3,166
Dover, New Jersey																	
4.																	
Army Materials	77	10,024	1,940	269	7,533	19,766	89	89	19,944	408	19	202	1	-	7	7	644
and Mechanics	78	9,935	3,305	230	7,538	21,008	92	132	21,232	392	19	202	1	-	7	10	631
Research	79	11,116	2,955	230	7,273	21,574	95	136	21,805	392	19	202	1	-	7	10	631
Center, Water-	80	11,723	3,150	280	7,575	22,728	95	136	22,959	392	19	202	1	-	7	10	631
town, Massachusetts																	

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	Other Army	Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Industrial Fund Installations																	
5.																	
Dugway Proving	77	14,187	-	-	-	14,187	2,275	-	16,462	451	-	-	-	-	179	-	630
Ground,	78	12,737	-	-	-	12,737	2,363	-	15,100	480	-	-	-	-	179	-	659
Dugway, Utah	79	15,728	-	-	-	15,728	2,432	-	18,160	490	-	-	-	-	179	-	669
	80	17,695	-	-	-	17,695	2,433	-	20,128	490	-	-	-	-	179	-	669
6.																	
Harry Diamond	77	12,601	9,113	7,092	5,020	33,826	-	102	33,928	338	-	1,019	-	-	-	8	1,365
Laboratories,	78	10,597	8,450	6,227	4,296	29,570	-	106	29,676	345	-	916	-	-	-	8	1,269
Adelphi,	79	11,562	7,611	6,950	3,332	29,455	-	109	29,564	343	-	868	-	-	-	8	1,219
Maryland	80	10,303	7,611	6,950	2,900	27,764	-	109	27,873	363	-	848	-	-	-	8	1,219
7.																	
Missile	77	1,788	15	-	-	1,803	38	-	1,841	88	-	-	-	-	3	-	91
Materiel	78	1,607	-	-	-	1,607	40	-	1,647	76	-	-	-	-	3	-	79
Readiness	79	1,438	-	-	-	1,438	41	-	1,479	70	-	-	-	-	3	-	73
Command	80	1,364	-	-	-	1,364	41	-	1,405	70	-	-	-	-	3	-	73
(Includes RDTE Project Managers only), Redstone Arsenal, Alabama																	
8.																	
Missile	77	75,952	12,516	1,101	218	89,787	2,021	-	91,808	1,487	31	4	-	-	159	-	1,681
Research and	78	61,217	9,827	630	71	71,745	2,033	-	73,778	1,558	40	1	-	-	154	-	1,753
Development	79	60,445	9,434	575	71	70,525	1,386	-	71,911	1,434	35	1	-	-	102	-	1,572
Command,	80	50,350	9,232	575	70	60,227	1,386	-	61,613	1,439	30	1	-	-	102	-	1,572
Redstone Arsenal, Alabama																	

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Industrial Fund Installations																	
Subtotal Army	77	242,729	76,422	17,127	82,309	418,587	11,973	241	430,801	8,814	165	1,295	1	-	942	19	11,236
Industrial	78	237,114	57,115	12,597	83,836	390,662	11,907	290	402,859	8,978	128	1,189	1	-	902	22	11,220
Fund	79	254,528	57,053	13,108	83,017	407,706	11,547	299	419,552	8,929	121	1,141	1	-	850	22	11,064
	80	251,575	57,037	13,128	82,926	404,666	11,551	299	416,516	8,955	115	1,121	1	-	850	22	11,064

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
9.																	
Aeromedical	77	2,306	-	-	71	2,377	788	-	3,165	59	-	-	-	-	62	-	121
Research	78	2,516	-	-	12	2,528	898	-	3,426	48	-	-	-	-	68	-	116
Laboratory,	79	2,583	-	-	12	2,595	992	-	3,587	48	-	-	-	-	73	-	121
Ft Rucker, Alabama	80	2,583	-	-	12	2,595	992	-	3,587	48	-	-	-	-	73	-	121
10.																	
Air Defense	77	2,348	89	-	152	2,589	1,500	-	4,089	80	-	-	-	-	118	-	198
Board, Ft	78	2,367	77	-	153	2,597	1,571	-	4,168	87	-	-	-	-	119	-	206
Bliss, Texas	79	2,281	77	-	133	2,491	1,684	-	4,175	87	-	-	-	-	124	-	211
	80	2,281	77	-	133	2,491	1,685	-	4,176	87	-	-	-	-	124	-	211
11.																	
Airborne	77	1,261	-	-	310	1,571	1,550	-	3,121	52	-	-	-	-	122	-	174
Communications	78	1,537	-	-	200	1,737	1,663	-	3,400	52	-	-	-	-	126	-	178
& Electronics	79	2,124	-	-	200	2,324	1,807	-	4,131	52	-	-	-	-	133	-	185
Board, Ft Bragg, North Carolina	80	2,024	-	-	200	2,224	1,807	-	4,031	52	-	-	-	-	133	-	185
12.																	
Aircraft	77	6,481	737	-	1,640	8,858	1,182	-	10,040	93	-	-	193	-	93	-	379
Development &	78	5,809	1,180	-	3,013	10,002	2,574	-	12,576	95	-	-	193	-	195	-	483
Test Activity,	79	6,120	1,101	-	2,580	9,801	2,921	-	12,722	95	-	-	193	-	215	-	503
Ft Rucker, Alabama	80	6,120	1,101	-	2,580	9,801	2,922	-	12,723	95	-	-	193	-	215	-	503

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
13.																	
Armor and	77	3,081	-	-	314	3,395	2,999	-	6,394	85	-	-	-	-	236	-	321
Engineer Board,	78	3,710	-	-	300	4,010	2,904	-	6,914	86	-	-	-	-	220	-	306
Ft Knox, Texas	79	4,294	-	-	300	4,594	3,124	-	7,718	86	-	-	-	-	230	-	316
	80	4,194	-	-	300	4,494	3,126	-	7,620	86	-	-	-	-	230	-	316
14.																	
Army Materiel	77	7,185	-	-	-	7,185	483	-	7,668	116	-	-	-	-	38	-	154
Development &	78	4,687	-	-	-	4,687	502	-	5,189	116	-	-	-	-	38	-	154
eadiness	79	4,387	-	-	-	4,387	516	-	4,903	116	-	-	-	-	38	-	154
ommand,	80	4,387	-	-	-	4,387	516	-	4,903	116	-	-	-	-	38	-	154
Alexandria, Virginia																	
15.																	
Army Materiel	77	74,181	3,905	-	1,207	79,293	1,525	25	80,843	442	-	112	4	-	120	2	680
Development &	78	70,095	10,707	-	1,669	82,471	2,046	40	84,557	496	-	110	6	-	155	3	770
Readiness	79	65,973	6,192	-	7,099	79,264	2,228	41	81,533	539	-	34	6	-	164	3	746
Command,	80	48,013	9,862	-	26,658	84,533	2,188	149	86,870	477	-	104	12	-	161	11	765
Program Managers, Various Locations																	
16.																	
Army Engineer	77	3,160	697	-	125	3,982	838	-	4,820	104	-	-	7	-	66	-	177
Flight	78	4,006	354	-	25	4,385	845	-	5,230	104	-	-	7	-	64	-	175
Activity,	79	6,585	-	-	-	6,585	924	-	7,509	104	-	-	7	-	68	-	179
Edwards Air	80	5,362	-	-	-	5,362	965	-	6,327	104	-	-	7	-	71	-	182
Force Base, alifornia																	

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
17.																	
Army Research	77	2,758	-	-	-	2,758	25	-	2,783	90	-	-	-	-	2	-	92
Office,	78	2,832	-	-	46	2,878	26	-	2,904	94	-	1	-	-	2	-	97
Research	79	3,150	-	-	46	3,196	27	-	3,223	94	-	1	-	-	2	-	97
Triangle Park, North Carolina	80	3,150	-	-	46	3,196	27	-	3,223	94	-	1	-	-	2	-	97
18.																	
Atmospheric	77	8,754	218	983	74	10,029	5,401	-	15,430	200	6	-	22	-	425	-	653
Science Laboratory, White	78	8,419	100	725	-	9,244	5,505	-	14,749	199	6	-	22	-	417	-	644
	79	9,737	100	700	-	10,537	5,760	-	16,297	176	6	-	22	-	424	-	628
Sands Missile Range, Las Cruces, New Mexico	80	9,738	100	700	-	10,538	5,762	-	16,300	178	6	-	22	-	424	-	630
19.																	
Aviation	77	8,954	470	24	-	9,448	64	25	9,537	246	-	131	-	-	5	2	384
Research and	78	16,292	-	-	-	16,292	66	26	16,384	399	-	131	-	-	5	2	537
Development	79	29,359	3,600	-	-	32,959	68	27	33,054	401	-	131	-	-	5	2	539
Command, St Louis, Missouri	80	38,061	4,658	-	-	42,719	68	27	42,814	417	-	131	-	-	5	2	555
20.																	
Aviation Test	77	1,221	39	-	104	1,364	966	-	2,330	36	-	-	-	-	76	-	112
Board, Ft	78	1,388	-	-	-	1,388	1,016	-	2,404	36	-	-	-	-	77	-	113
Rucker,	79	2,201	-	-	-	2,201	1,073	-	3,274	36	-	-	-	-	79	-	115
Alabama	80	2,001	-	-	-	2,001	1,074	-	3,075	36	-	-	-	-	79	-	115

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	Other Army	Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
21.																	
Avionics Laboratory, Ft Monmouth, New Jersey	77	4,350	1,520	199	3,999	10,068	76	-	10,144	95	2	58	14	-	6	-	175
	78	5,094	1,500	-	4,000	10,594	79	-	10,673	110	-	59	14	-	6	-	189
	79	4,791	1,500	-	4,000	10,291	82	-	10,373	110	-	59	14	49	6	-	238
	80	5,689	1,500	-	4,000	11,189	82	-	11,271	110	-	59	14	49	6	-	238
22.																	
Avionics Research Center, Moffat Field, California	77	36,323	5,215	300	-	41,838	318	-	42,156	483	-	-	-	-	25	-	508
	78	33,268	4,607	1,265	50	39,190	343	-	39,533	473	-	-	-	-	26	-	499
	79	43,787	3,482	665	50	47,984	408	-	48,392	474	-	-	-	-	30	-	504
	80	53,923	4,850	600	50	59,423	408	-	59,831	474	-	-	-	-	30	-	504
23.																	
Ballistic Missile Defense Advanced Technology Center, Huntsville, Alabama	77	3,654	-	-	-	3,654	89	-	3,743	107	-	-	-	-	7	-	114
	78	4,093	-	-	-	4,093	106	-	4,199	101	-	-	-	-	8	-	109
	79	4,513	-	-	-	4,513	136	-	4,649	101	-	-	-	-	10	-	111
	80	4,996	-	-	-	4,996	136	-	5,132	101	-	-	-	-	10	-	111
24.																	
Ballistic Missile Defense Program Office, Alexandria, Virginia	77	1,163	-	-	-	1,163	191	-	1,354	30	-	-	-	-	15	-	45
	78	639	-	-	-	639	172	-	811	14	-	-	-	-	13	-	27
	79	663	-	-	-	663	190	-	853	14	-	-	-	-	14	-	28
	80	664	-	-	-	664	190	-	854	14	-	-	-	-	14	-	28

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
25.																	
Ballistic	77	4,761	-	-	-	4,761	153	-	4,914	154	-	-	-	-	12	-	166
Missile Defense	78	6,583	-	-	-	6,583	211	-	6,794	177	-	-	-	-	16	-	193
Systems	79	6,924	-	-	-	6,924	245	-	7,169	177	-	-	-	-	18	-	195
Command, Huntsville, Alabama	80	7,435	-	-	-	7,435	245	-	7,680	177	-	-	-	-	18	-	195
26.																	
Cold Regions	77	2,971	600	150	2,700	6,421	165	-	6,586	162	5	79	-	-	13	-	259
Research &	78	3,500	800	175	2,862	7,337	172	-	7,509	158	6	78	-	-	13	-	255
Development	79	3,482	1,000	192	2,882	7,556	177	-	7,733	158	6	75	-	-	13	-	252
Laboratory, Hanover, New Hampshire	80	3,800	1,200	200	3,000	8,200	177	-	8,377	158	6	75	-	-	13	-	252
27.																	
*Cold Regions	77	3,648	113	-	-	3,761	3,101	-	6,862	22	-	-	10	-	244	-	276
Test Center,	78	3,719	90	-	-	3,809	3,380	-	7,189	26	-	-	10	-	256	-	292
Ft Greely,	79	3,819	180	-	-	3,999	3,858	-	7,857	26	-	-	-	-	284	-	310
Alaska	80	4,355	150	-	-	4,505	3,859	-	8,364	26	-	-	-	-	284	-	310
28.																	
Communications	77	30,737	991	370	4,765	36,863	254	-	37,117	764	3	57	10	-	20	-	854
Research and	78	34,272	1,448	355	3,504	39,579	1,545	-	41,124	774	3	75	10	-	117	-	979
Development	79	38,394	1,414	355	3,480	43,643	1,807	-	45,450	755	3	64	17	-	133	-	972
Command, Ft Monmouth, New Jersey	80	43,265	1,315	355	3,500	48,435	1,807	-	50,242	749	3	65	2	-	133	-	952

* Formerly Artic Test Center

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	Other Army	Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
29.																	
Computer	77	1,037	-	-	-	1,037	64	-	1,101	17	-	-	-	-	5	-	22
Systems	78	2,104	-	-	-	2,104	92	-	2,196	28	-	-	-	-	7	-	35
Command, Ft	79	2,854	-	-	-	2,854	95	-	2,949	28	-	-	-	-	7	-	35
Belvoir, Virginia	80	3,300	-	-	-	3,300	95	-	3,395	28	-	-	-	-	7	-	35
30.																	
Construction	77	6,512	2,916	181	54	9,663	38	-	9,701	197	-	-	-	-	3	-	200
Engineering	78	4,838	3,311	190	75	8,414	40	-	8,454	192	-	-	-	-	3	-	195
Research Lab-	79	8,880	3,549	270	95	12,794	41	-	12,835	192	-	-	-	-	3	-	195
oratory,	80	10,005	2,665	200	110	12,980	41	-	13,021	192	-	-	-	-	3	-	195
Urbana, Illinois																	
31.																	
Corps of	77	367	-	816	-	1,183	-	-	1,183	12	-	-	-	-	-	-	12
Engineer Head-	78	536	-	559	-	1,095	-	-	1,095	10	-	-	-	-	-	-	10
quarters,	79	529	-	522	-	1,051	-	-	1,051	10	-	-	-	-	-	-	10
Washington, DC	80	529	-	522	-	1,051	-	-	1,051	10	-	-	-	-	-	-	10
32.																	
Electronic	77	7,143	4,530	1,002	33	12,708	3,495	674	16,877	131	33	32	-	-	275	53	524
Proving Ground,	78	7,359	4,760	1,050	35	13,204	3,894	700	17,798	131	33	32	-	-	295	53	544
Ft Huachuca,	79	9,324	4,995	1,108	37	15,464	4,143	720	20,327	131	33	32	-	-	305	53	554
Arizona	80	8,390	5,183	1,163	39	14,775	4,145	720	19,640	131	33	32	-	-	305	53	554

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
33.																	
Electronics	77	32,927	15,800	2,899	9,913	61,539	330	127	61,996	1,882	80	152	-	-	26	10	2,150
Research &	78	33,791	13,610	1,545	13,173	62,119	1,254	251	63,624	1,370	21	171	-	-	95	19	1,676
Development	79	37,447	11,012	1,729	11,958	62,146	1,780	258	64,184	1,344	18	192	-	-	131	19	1,704
Command, Ft	80	46,259	11,756	1,863	12,540	72,418	1,780	258	74,456	1,336	16	197	-	-	131	19	1,699
Monmouth, New Jersey																	
34.																	
Engineer Topo-	77	3,389	2,612	2,011	952	8,964	153	51	9,168	144	95	38	-	-	12	4	293
graphic Lab-	78	3,832	2,066	2,178	1,161	9,237	172	53	9,462	168	61	38	-	-	13	4	304
oratory, Ft	79	4,248	2,587	1,485	1,200	9,520	231	54	9,805	176	37	38	-	-	17	4	272
Belvoir,	80	4,662	3,137	1,600	1,250	10,649	231	54	10,934	178	28	38	-	-	17	4	265
Virginia																	
35.																	
Engineer Water-	77	3,951	3,817	5,430	1,226	14,424	203	-	14,627	349	331	66	-	-	16	-	762
way Experi-	78	4,596	4,060	6,400	450	15,506	224	-	15,730	360	345	24	-	-	17	-	746
mental Center,	79	5,336	4,500	6,650	525	17,011	258	-	17,269	364	319	26	-	-	19	-	728
Vicksburg,	80	5,336	4,500	6,650	525	17,011	258	-	17,269	364	319	26	-	-	19	-	728
Mississippi																	
36.																	
Facility	77	310	932	-	-	1,242	-	-	1,242	11	-	-	-	-	-	-	11
Engineer	78	290	130	-	-	420	-	-	420	11	-	-	-	-	-	-	11
Support Agency,	79	340	360	-	-	700	-	-	700	11	-	-	-	-	-	-	11
Ft Belvoir,	80	340	460	-	-	800	-	-	800	11	-	-	-	-	-	-	11
Virginia																	

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
37.																	
Field	77	1,163	10	-	163	1,336	1,817	-	3,153	35	-	-	-	-	143	-	178
Artillery	78	1,381	-	-	-	1,381	2,350	-	3,731	35	-	-	-	-	178	-	213
Board, Ft	79	1,674	-	-	-	1,674	2,500	-	4,174	35	-	-	-	-	184	-	219
Sill, Oklahoma	80	1,674	-	-	-	1,674	2,500	-	4,174	35	-	-	-	-	184	-	219
38.																	
Foreign	77	43	-	-	-	43	13	-	56	2	-	-	-	-	1	-	3
Science &	78	46	-	-	-	46	13	-	59	2	-	-	-	-	1	-	3
Technology	79	50	-	-	-	50	14	-	64	2	-	-	-	-	1	-	3
Center,	80	54	-	-	-	54	14	-	68	2	-	-	-	-	1	-	3
Charlottsville, Virginia																	
39.																	
Infantry	77	1,321	-	-	57	1,378	1,360	-	2,738	52	-	-	-	-	107	-	159
Board, Ft	78	1,531	-	-	-	1,531	1,558	-	3,089	55	-	-	-	-	118	-	173
Benning,	79	1,941	-	-	-	1,941	1,657	-	3,598	55	-	-	-	-	122	-	177
Georgia	80	1,941	-	-	-	1,941	1,658	-	3,599	55	-	-	-	-	122	-	177
40.																	
Institute of	77	1,819	-	-	-	1,819	1,690	-	3,509	77	-	-	-	-	133	-	210
Surgical	78	1,885	-	-	-	1,885	1,769	-	3,654	83	-	-	-	-	134	-	217
Research, Ft	79	2,062	-	-	-	2,062	1,875	-	3,937	83	-	-	-	-	138	-	221
Sam Houston,	80	2,062	-	-	-	2,062	1,875	-	3,937	83	-	-	-	-	138	-	221
Texas																	

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
41.																	
Intelligence	77	20	-	-	-	20	-	-	20	-	-	-	-	-	-	-	-
and Security	78	514	-	-	-	514	964	-	1,478	18	-	-	-	-	73	-	91
Board, Ft	79	1,247	-	-	-	1,247	1,100	-	2,347	18	-	-	-	-	81	-	99
Huachuca,	80	1,221	-	-	-	1,221	1,101	-	2,322	18	-	-	-	-	81	-	99
Arizona																	
42.																	
Intelligence	77	4,189	100	-	489	4,778	1,894	13	6,685	114	19	14	-	-	149	1	297
and Security	78	4,955	-	-	724	5,679	1,677	13	7,369	94	16	152	-	-	127	1	[illegible]
Command, Vint	79	5,130	-	-	758	5,888	1,929	14	7,831	113	15	214	-	-	142	1	[illegible]
Hill Farms,	80	5,292	-	-	823	6,115	1,930	14	8,059	111	14	214	-	-	142	1	[illegible]
Virginia																	
43.																	
Jefferson	77	-	563	-	-	563	-	38	601	-	-	-	-	-	-	3	3
Proving	78	-	563	-	-	563	-	53	616	-	-	-	-	-	-	4	4
Grounds,	79	60	507	-	-	567	-	54	621	-	-	-	-	-	-	4	4
Madison,	80	-	507	-	-	507	-	54	561	-	-	-	-	-	-	4	4
Wisconsin																	
44.																	
Kwajalein	77	56,750	5,870	4,125	-	66,745	356	-	67,101	127	-	-	3,109	-	28	-	3,264
Missile Range,	78	58,665	7,300	4,485	-	70,450	449	-	70,899	133	-	-	3,058	-	34	-	3,225
Marshall	79	59,605	7,605	6,575	-	73,785	530	-	74,315	133	-	-	3,093	-	39	-	3,265
Islands	80	62,300	7,870	6,695	-	76,865	530	-	77,395	133	-	-	3,077	-	39	-	3,249

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
45.																	
Letterman Army	77	5,801	-	-	50	5,851	4,334	-	10,185	193	-	-	-	-	341	-	534
Institute of	78	6,820	-	-	50	6,870	4,475	-	11,345	189	-	-	-	-	339	-	528
Research, San	79	7,520	-	-	50	7,570	4,619	-	12,189	179	-	-	-	-	340	-	519
Francisco, California	80	7,520	-	-	50	7,570	4,022	-	11,592	179	-	-	-	-	296	-	475
46.																	
Liaison Field	77	3,004	7	-	41	3,052	330	-	3,382	93	-	-	-	-	26	-	119
Offices,	78	3,680	-	-	10	3,690	304	-	3,994	119	-	-	-	-	23	-	142
Various	79	5,128	-	-	-	5,128	353	-	5,481	112	-	-	-	-	26	-	138
Locations (ARI)	80	5,097	-	-	-	5,097	353	-	5,450	124	-	-	-	-	26	-	150
47.																	
Liaison	77	188	-	-	-	188	51	-	239	5	-	-	-	-	4	-	9
Offices,	78	201	-	-	-	201	53	-	254	6	-	-	-	-	4	-	10
Various	79	207	-	-	-	207	54	-	261	6	-	-	-	-	4	-	10
Locations (DARCOM)	80	207	-	-	-	207	54	-	261	6	-	-	-	-	4	-	10
48.																	
Medical Bio-	77	2,592	-	-	70	2,662	470	-	3,132	79	-	-	-	-	37	-	116
Engineering	78	2,183	-	-	64	2,247	436	-	2,683	79	-	-	-	-	33	-	112
Laboratory, Ft	79	2,251	-	-	67	2,318	503	-	2,821	79	-	-	-	-	37	-	116
Detrick, Maryland	80	2,251	-	-	71	2,322	503	-	2,825	63	-	-	-	-	37	-	100

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
49.																	
Medical R&D	77	2,149	-	-	-	2,149	661	-	2,810	90	-	-	-	-	52	-	142
Command,	78	2,037	-	-	-	2,037	686	-	2,723	90	-	-	-	-	52	-	142
Washington, DC	79	2,744	-	-	-	2,744	706	-	3,450	90	-	-	-	-	52	-	142
	80	2,744	-	-	-	2,744	707	-	3,451	90	-	-	-	-	52	-	142
50.																	
Medical	77	6,871	-	-	87	6,958	3,165	-	10,123	189	-	-	-	-	249	-	438
Research	78	8,143	-	-	95	8,238	3,696	-	11,934	195	-	-	-	-	280	-	475
Institute of	79	8,669	-	-	100	8,769	4,741	-	13,510	195	-	-	-	-	349	-	544
Infectious	80	8,669	-	-	109	8,778	4,743	-	13,521	195	-	-	-	-	349	-	[illegible]
Diseases, Ft Detrick, Maryland																	
51.																	
Mobility	77	18,483	731	117	16,159	35,490	890	89	36,469	931	5	351	-	-	70	7	1,364
Equipment	78	18,852	685	100	16,216	35,853	950	106	36,909	935	5	351	-	-	72	8	1,371
Research and	79	23,084	700	100	16,500	40,384	1,046	109	41,539	925	4	239	-	-	77	8	1,253
Development	80	28,822	800	120	16,750	46,492	1,046	109	47,647	925	4	240	-	-	77	8	1,254
Command, Ft Belvoir, Virginia																	
52.																	
Natick	77	14,301	1,357	214	2,179	18,051	788	-	18,839	527	-	-	-	-	62	-	589
Research and	78	15,904	970	36	1,370	18,280	950	-	19,230	506	-	-	-	-	72	-	578
Development	79	17,982	1,177	36	825	20,020	1,073	-	21,093	506	-	-	-	-	79	-	585
Command,	80	19,029	1,177	36	825	21,067	1,074	-	22,141	506	-	-	-	-	79	-	585
Natick, Massachusetts																	

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INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds 1/	Sub-Total	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
53. Night Vision Laboratory, Ft Belvoir, Virginia	77	11,650	1,457	421	402	13,930	280	-	14,210	428	-	19	25	-	22	-	494
	78	11,920	2,250	500	494	15,164	251	-	15,415	505	-	27	33	-	19	-	584
	79	12,895	2,250	500	494	16,139	285	-	16,424	461	-	27	35	-	21	-	544
	80	13,730	2,250	500	494	16,974	285	-	17,259	459	-	27	35	-	21	-	542
54. Research Institute for Behavioral Sciences, Alexandria, Virginia	77	7,322	-	-	65	7,387	178	-	7,565	210	-	-	-	-	14	-	224
	78	8,182	-	-	80	8,262	185	-	8,447	245	-	-	-	-	14	-	259
	79	11,363	-	-	55	11,418	190	-	11,608	260	-	-	-	-	14	-	274
	80	13,403	-	-	-	13,403	190	-	13,593	270	-	-	-	-	14	-	284
55. Research Institute of Environmental Medicine, Natick, Massachusetts	77	3,514	-	-	60	3,574	801	-	4,375	91	-	-	-	-	63	-	154
	78	3,593	-	-	116	3,709	937	-	4,646	83	-	-	-	-	71	-	154
	79	4,149	-	-	54	4,203	1,372	-	5,575	83	-	-	-	-	101	-	184
	80	4,149	-	-	4	4,153	1,400	-	5,553	83	-	-	-	-	103	-	186
56. Satellite Communications Agency, Ft Monmouth, New Jersey	77	4,240	-	-	-	4,240	534	127	4,901	102	-	-	-	-	42	10	154
	78	4,260	-	-	-	4,260	502	185	4,947	107	-	-	-	-	38	14	159
	79	4,482	-	-	-	4,482	543	190	5,215	107	-	-	-	-	40	14	161
	80	4,710	-	-	-	4,710	544	190	5,444	107	-	-	-	-	40	14	161

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
57.																	
Standard-	77	17	-	-	-	17	25	-	42	-	-	-	-	-	2	-	2
ization Group,	78	17	-	-	-	17	26	-	43	-	-	-	-	-	2	-	2
Australia	79	17	-	-	-	17	27	-	44	-	-	-	-	-	2	-	2
	80	17	-	-	-	17	27	-	44	-	-	-	-	-	2	-	2
58.																	
Standard-	77	35	-	-	-	35	25	-	60	4	-	-	-	-	2	-	6
ization Group,	78	39	-	-	-	39	26	-	65	4	-	-	-	-	2	-	6
Canada	79	39	-	-	-	39	27	-	66	4	-	-	-	-	2	-	6
	80	39	-	-	-	39	27	-	66	4	-	-	-	-	2	-	6
59.																	
Standard-	77	683	-	-	-	683	76	-	759	21	-	-	-	-	6	-	27
ization Group,	78	810	-	-	-	810	79	-	889	21	-	-	-	-	6	-	27
United Kingdom	79	747	-	-	-	747	82	-	829	21	-	-	-	-	6	-	27
	80	747	-	-	-	747	82	-	829	21	-	-	-	-	6	-	27
60.																	
Tank Auto-	77	8,805	2,164	584	9,523	21,076	140	-	21,216	214	15	399	-	-	11	-	639
motive	78	10,962	402	593	9,215	21,172	198	-	21,370	301	18	497	-	-	15	-	831
Research &	79	11,754	565	552	10,172	23,043	245	-	23,288	311	17	478	-	-	18	-	824
Development	80	11,122	2,224	556	10,172	24,074	245	-	24,319	311	17	478	-	-	18	-	824
Command, Warren, Michigan																	

1/ Exclusive of Military Personnel and Military Construction

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	Other Army	Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Contractor Paid From RDTE	Paid From Other Funds	Mil. Pers. In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
61.																	
Test and	77	11,940	-	-	-	11,940	1,678	-	13,618	589	-	6	-	-	132	-	727
Evaluation	78	14,195	-	-	-	14,195	1,307	-	15,502	645	-	6	-	-	99	-	750
Command Head-	79	17,501	-	-	-	17,501	1,847	-	19,348	610	-	5	-	-	136	-	751
quarters,	80	18,267	-	-	-	18,267	1,712	-	19,979	610	-	5	-	-	126	-	741
Aberdeen, Maryland																	
62.																	
TRADOC	77	1,866	-	-	10,782	12,648	-	3,826	16,474	-	-	134	15	120	-	301	570
Combined Arms	78	941	-	-	7,593	8,534	-	3,973	12,507	-	-	134	15	140	-	301	590
Test Activity	79	2,114	-	-	7,198	9,312	-	4,089	13,401	-	-	134	15	160	-	301	610
(TCATA), Ft	80	2,398	-	-	7,198	9,596	-	4,090	13,686	-	-	134	15	160	-	301	610
Hood, Texas (TRADOC)																	
63.																	
TRADOC	77	-	-	-	-	-	25	-	25	-	-	-	-	-	2	-	2
Combined Arms	78	16	-	-	-	16	26	-	42	1	-	-	-	-	2	-	3
Test Activity	79	16	-	-	-	16	27	-	43	1	-	-	-	-	2	-	3
Support Office,	80	16	-	-	-	16	27	-	43	1	-	-	-	-	2	-	3
Ft Hood, Texas (DARCOM)																	
64.																	
Tri-Service	77	4,356	-	511	-	4,867	356	165	5,388	152	-	-	-	-	28	13	193
Tactical	78	5,121	-	722	-	5,843	396	172	6,411	167	-	-	-	-	30	13	210
Communications	79	5,288	-	766	-	6,054	516	177	6,747	167	-	-	-	-	38	13	218
Systems (TRI-	80	5,462	-	775	-	6,237	516	177	6,930	167	-	-	-	-	38	13	218
TAC), Ft Monmouth, New Jersey																	

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands) RDTE Funds Mgmt. Bureau	RDTE Funds Other Army	RDTE Funds Other DOD	All Other Funds	Sub-Total 1/	Mil. Pers. RDTE	Mil. Pers. Other	Total	PERSONNEL (Man-Years) Civil Service Paid From Army RDTE	Civil Service Paid From Other RDTE	Civil Service Paid From Other	Contractor Paid From RDTE	Contractor Paid From Other Funds	Mil. Pers. In RDTE Work	Mil. Pers. Other	Total
Army Non-Industrial Fund Installations																	
65.																	
Tropic Test	77	2,647	169	2	33	2,851	1,017	-	3,868	63	-	-	-	-	80	-	143
Center,	78	2,529	183	2	25	2,739	1,082	-	3,821	62	-	-	-	-	82	-	144
Panama, Canal	79	2,856	193	2	15	3,066	1,209	-	4,275	62	-	-	-	-	89	-	151
Zone	80	2,996	180	-	30	3,206	1,209	-	4,415	62	-	-	-	-	89	-	151
66.																	
Walter Reed	77	16,179	-	-	300	16,479	5,147	-	21,626	428	-	-	-	-	405	-	833
Army Institute	78	16,599	-	-	325	16,924	4,937	-	21,861	444	-	-	-	-	374	-	818
of Research,	79	18,676	-	-	325	19,001	6,045	-	25,046	444	-	-	-	-	445	-	889
Washington, DC	80	18,676	-	-	325	19,001	6,047	-	25,048	444	-	-	-	-	445	-	
67.																	
White Sands	77	91,553	25,935	4,136	22	121,646	11,718	102	133,466	2,643	76	24	988	-	922	8	4,661
Missile Range,	78	97,546	29,996	4,244	7	131,793	12,303	106	144,202	2,644	29	27	988	-	932	8	4,628
Las Cruces,	79	113,908	31,225	4,277	12	149,422	12,796	109	162,327	2,649	24	27	1,012	-	942	8	4,662
New Mexico	80	109,579	31,225	4,277	12	145,093	12,801	109	158,003	2,649	14	27	1,012	-	942	8	4,652
68.																	
Yuma Proving	77	16,003	6,373	1,181	70	23,627	4,067	-	27,694	553	-	17	-	-	320	-	890
Ground, Yuma,	78	15,944	7,014	825	-	23,783	4,990	-	28,773	531	-	17	-	-	378	-	926
Arizona	79	20,497	7,705	280	-	28,482	5,271	-	33,753	536	-	17	-	-	388	-	941
	80	20,986	6,374	600	-	27,960	5,273	-	33,233	536	-	17	-	-	388	-	941

1/ Exclusive of Military Personnel and Military Construction

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

Installation and Location	FY	TOA ($ in Thousands)								PERSONNEL (Man-Years)							
		RDTE Funds			All Other Funds 1/	Sub-Total	Mil. Pers.		Total	Civil Service			Contractor		Mil. Pers.		
		Mgmt. Bureau	Other Army	Other DOD			RDTE	Other		Paid From Army RDTE	Paid From Other RDTE	Paid From Other	Paid From RDTE	Paid From Other Funds	In RDTE Work	Other	Total
Army Non-Industrial Fund Installations																	
Subtotal Army	77	564,437	89,937	25,656	68,191	748,221	69,837	5,262	823,320	14,175	670	1,689	4,397	120	5,495	414	26,960
Non-Industrial	78	591,643	98,163	25,949	67,112	782,867	78,875	5,678	867,420	14,214	543	1,930	4,356	140	5,975	430	27,588
Fund	79	679,781	97,576	26,764	71,222	875,343	87,757	5,842	968,942	14,152	482	1,793	4,414	209	6,460	430	27,940
Installations	80	706,042	105,121	27,412	91,806	930,381	87,081	5,951	1023,413	14,098	460	1,870	4,389	209	6,408	438	27,872
Total, In-House	77	807,166	166,359	42,783	150,500	1166,808	81,810	5,503	1254,121	22,989	835	2,984	4,398	120	6,437	433	38,196
	78	828,757	155,278	38,546	150,948	1173,529	90,782	5,968	1270,279	23,192	671	3,119	4,357	140	6,877	452	38,808
	79	934,309	154,629	39,872	154,239	1283,049	99,304	6,141	1388,494	23,081	603	2,934	4,415	209	7,310	452	39,004
	80	957,617	162,158	40,540	174,732	1335,047	98,632	6,250	1439,929	23,053	575	2,991	4,390	209	7,258	460	38,936

1/ Exclusive of Military Personnel and Military Construction

Section 5

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
ANALYSIS OF REIMBURSABLE PROGRAM
($ in Thousands)

	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE
Customer			
Department of the Army	208,909	185,400	178,800
Other Department of Defense Components			
Department of the Navy	24,281	23,600	17,700
Department of the Air Force	23,361	19,300	17,500
US Marine Corps	5,157	4,800	1,300
Defense Advanced Research Projects Agency	10,163	9,100	7,600
Defense Communications Agency	1,097	1,100	900
Defense Mapping Agency	5,590	5,300	4,700
Defense Nuclear Agency	13,318	13,100	11,900
National Security Agency	10,831	10,900	14,800
Subtotal	93,798	87,200	76,400
Activities Outside Department of Defense			
Department of Commerce	510	300	200
Department of Transportation	529	300	300
National Aeronautical and Space Administration	842	100	200
National Oceanic and Atmospheric Administration	827	800	900
National Science Foundation	160	200	200
Environmental Protection Agency	320	300	300
Energy Research and Development Administration	4,961	4,450	6,450
Federal Energy Administration	300	300	300
Trust Funds	15,237	0	0
Other	11,864	2,200	1,650
Nonfederal Sources	1,847	250	300
Subtotal	37,397	9,200	10,800
TOTAL	340,104	281,800	266,000

Section 5 (Contd)

ANALYSIS OF REIMBURSABLE PROGRAM

DESCRIPTION OF REIMBURSABLE WORK

A large percentage of the Research, Development, Test, and Evaluation (RDTE) reimbursable program is for intra-Army (both inter/intra-appropriation) work or services performed under automatic reimbursement procedures. RDTE efforts also support requests received from other Federal and Nonfederal agencies on a reimbursable basis. Major areas of support include:

a. Navy - 5" and 8" Guided Projectile Program; Meteorological Support; Radiometer Set-up; Laser System and Components; Mobility Analysis GATOR Seismic Testing; Seismic Techniques for Hostile Weapons Systems; Map Preparation; Solid Waste System; Sea Ice Imagery Analysis; Studies for Arboviruses and Tropical Sprue.

b. Air Force - Test and Evaluation Command Testing Support; High Energy Laser MAVERICK; Advanced Ballistic Re-Entry System Support; 75mm Solid Prop Gun and Ammunition; Laser and Radar Systems; Infra-Red Counter Mortar System; Engineering Support for Conventional System Definition and Analysis Program; Minute Man II/III Operational Testing; Air Force Weapons Laboratory - High Energy Beam Research; Rome Air Development Center/Ballistics Missile Defense Signature Development; Support MX Task C-1 Terrain Analysis Project, MX Component Tests, Grouting; Remote Sensor Analysis Work; Backfill Truss Enclosure; Multi-path/Foliage Attenuation Studies.

c. Marine Corps - GATOR Mine.

d. Defense Advanced Research Projects Agency - Mini Remotely Piloted Vehicle System; Laser Technology; Crystals and Films; Micron Photocathodes; Nuclear Weapons Effects.

e. Defense Mapping Agency - Cathode Ray Tube Printhood Explotation Software; Prototype Production System; Development of Ground Positioning Satellite Software.

f. Defense Nuclear Agency - Nuclear Weapons Effects; MRC 20KZ Launcher; Operational Test II AN/TPQ-36; Ground Motion Measures; Ground Motion Studies; Materiel Modeling; Grout Development; Road Cratering Tests; Wideband Equatorial.

g. National Security Agency - Cryptologic Program.

h. Department of Commerce - Subsea Permafrost; Remote Sensoring and Shear Zone.

i. Department of Transportation - Develop Math Model; Haul Road Study.

j. National Aeronautical and Space Administration - Mars Water Analysis.

k. Environmental Protection Agency - Technical Support Noise Abatement; Oil Movement and Ice Fog Study.

l. Energy Research and Development Administration - Pipe Line Gas; HYBLA Gold; DIABLO HAWK; Grout Studies; Borehole Waste; Micro Fracturing; High Temperature Dust Energy; Enzymatic Hydrolysis of Cellulose to Glucose Sugar.

Section 6

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
FEDERAL CONTRACT RESEARCH CENTERS

Federal Contract Research Centers (FCRCs) are those organizations primarily engaged in providing specialized technical and scientific effort necessary to supplement that available in the Army. The centers listed are those sponsored by the Department of Defense which provide technical and management services in the management of the Army's programs. These centers provide independent, specialized, technical and scientific capabilities to supplement that available within the Department of the Army.

FCRCs have been established to permit more organizational flexibility, and greater availability of technical and scientific personnel. These research centers possess unique skills and capabilities resulting from the development of highly specialized professional staff intimately acquainted with the many facets of the Army's mission. This capability results from long association and practical experience with the Army. The in-depth background provides the Army with a research capability that cannot be immediately obtained elsewhere. Long association with the Department of Defense enables these centers to render quick response technical advisory service as well as to perform detailed research and analysis. This long association has tailored these research centers to be compatible with Army interests, procedures and operational requirements.

While the Army no longer sponsors an FCRC it will be necessary to continue research and development effort at FCRCs sponsored by the Department of Defense and the other services. These research and development contracts provide timely and innovative products and techniques appropriate to current and long-range Army missions and plans.

The requested FY 1979 FCRC requirements reflect an increase of $3.1 million when comparing FY 1979 to FY 1978.

Section 6 (Contd) FEDERAL CONTRACT RESEARCH CENTERS

The following summary identifies the estimated work, excluding subcontract effort, to be placed with each Federal Contract Research Center (FCRC) from the Research, Development, Test, and Evaluation, Army appropriation and from the other Army appropriations.

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE	FY 1980 ESTIMATE
AEROSPACE CORPORATION				
Research, Development, Test, and Evaluation, Army				
6.27.07.A Mapping and Geodesy	-	24	-	-
6.33.04.A Ballistic Missile Defense Advanced Technology Center	150	225	250	300
6.33.08.A Ballistic Missile Defense Systems Technology	855 *	880 *	734 *	780 *
6.33.14.A High Energy Laser Components	50	50	70	70
6.37.30.A Tactical Surveillance System				
6.37.45.A Tactical Electronic Warfare Equipment				
6.47.40.A Tactical Surveillance System				
6.47.45.A Tactical Electronic Warfare Systems				
Total RDTE, Army	850	944	2,114	2,240
Total RDTE, Army Included in Air Force Ceiling	855	880	734	780
Total Aerospace Corporation	1,705	1,824	2,848	3,020

* Program funded by Army but included in Air Force ceiling.

Remarks: The expertise and facilities of Aerospace Corporation are required to support the Army as follows:

1. Mapping and Geodesy - Aerospace expertise is needed to assist in development of data processing routines and algorisms and for hardware and software interface of prototype systems. Aerospace is the only source of expertise in advanced data collection systems.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

2. Ballistic Missile Defense Advanced Technology Center - Interface and planning support for joint Army/Air Force research and development efforts mutually beneficial to the Ballistic Missile Defense (BMD)/Strategic Offense Force Missions. During FY 1979, this effort will address the interface between BMD missions and Air Force missions with the objective of providing a set of requirements mutually beneficial to both classes of missions. Support will also be provided to the US Air Force Space and Missile Systems Office (SAMSO) in procurement and integration of secondary payloads. Similar support has been provided in the past for other BMD Advanced Technology Center programs including the Special Target Program phase.

3. Ballistic Missile Defense Systems Technology Center - In FY 1979, the Air Force will support the Systems Technology Project Office (STPO) target program by providing MINUTEMAN-I (MMI) mission, and range scheduling and support. They will also provide the following target (booster and payload) related tasks as required to meet STPO test schedules.

a. Completion of payload to missile integration for four (surplus SAFEGUARD hardware) MMI missions.

b. Preparation and launch of these four MMI missions.

c. Preparation of missile and payloads and payload to booster integration for one Titan II mission.

The Air Force requires Aerospace support for general support engineering and contractor technical direction for all of the above tasks. Aerospace will also support the Systems Technology Program contractor, under Air Force direction, in areas of mission planning and mission design for future Systems Technology target programs. They will provide assistance for the identification of targets of opportunity (TOO) missions and support STPO in defining changes for improving TOO missions that might be acceptable to the prime agency.

4. High Energy Laser Components - Aerospace Corporation is the leading laboratory in the field of investigating the fundamental processes in D_2-F_2 lasers for service-related programs. Development of models for these processes is a requirement for later hardware program at contractor sites. Aerospace Corporation possesses highly qualified personnel with experience in

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

the areas of analysis referenced above. Their experience is particularly significant in the application of these analysis skills to chemical lasers. Aerospace has a significant amount of experience as consultants and advisors to Department of Defense high energy laser programs. Since Aerospace does not compete with the contractors involved, their judgments are relatively free of prejudice. No other technical organization, in industry or government, can provide the high quality expertise and unbiased support that Aerospace offers. No impact on the program is foreseen if alternative in-house capabilities or other contractor sources were to provide the support requested.

5. Tactical Electronic Warfare and Surveillance Systems -

a. General system support still be provided. Studies, both conceptual and hardware oriented, will be identified, scoped and performed according to established milestones. Aerospace will help develop a

Long-range planning and briefing support, both personnel and material will be provided.

b. General System Engineering/Technical Direction in support of simulation development and documentation and in support of other contractor efforts to be defined will be provided.

c. Aerospace will modify and exercise several

d. Aerospace will provide technical support and perform system studies in support of Army field evaluations.

e. Aerospace will provide

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE	FY 1980 ESTIMATE
LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY				
Research, Development, Test, and Evaluation, Army				
6.27.26.A Army Support Defense Advanced Research Project Agency (DARPA) HOWLS	975 *	2,000 *	2,000 *	1,500 *
6.33.04.A Ballistic Missile Defense Advanced Technology Program	7,149	7,435	7,913	8,560
6.33.14.A High Energy Laser Components	290	368	600	645
6.53.01.A Kwajalein Missile Range (KMR)	3,231	3,294	3,250	3,261
Total RDTE, Army	10,670	11,097	11,763	12,466
Total RDTE, Army Included in DARPA Ceiling	975	2,000	2,000	1,500
Total Lincoln Laboratory, Massachusetts Institute of Technology	11,645	13,097	13,763	13,9
Subcontract effort excluded from this amount	13,332	11,701	12,453	11,772

* Advanced Research Project Agency (ARPA) ceiling.

Remarks: Work to be performed at Lincoln Laboratories is as follows:

1. Army funded portion of joint ARPA/Army effort conducted by Lincoln Laboratory (MIT) to -

a. Define the performance and utility of a netted battlefield radar system.

b. Conduct studies, investigations, measurements and experiments leading to new techniques for detecting and accurately locating hostile artillery, mortars, and rockets in both the firing and non-firing modes (HOWLS).

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

2. Ballistic Missile Defense Advanced Technology Program -

a. Discrimination technology effort includes work in reentry discrimination, bulk filtering, bulk discrimination, exoatmospheric designation and discrimination engineering and radar data analysis and interpretation. Discrimination techniques utilizing millimeter wavelength radars, passive optics and laser radars will also be evaluated.

b. Radar technology effort includes work in millimeter-wave components, laser components, large bandwidth signal processing, radar signal processing, antenna technology, surface wave technology, array development, and hardened components.

c. Optics technology effort includes: Operation of the Army Optical Station at Kwajalein Missile Range, which includes two passive optical sensors and one laser sensor, obtaining signature measurements on targets-of-opportunity and conducting handover experiments between these sensors and the Kiernan Reentry Measurements Site radars; and investigation and development of adaptive optics technology for laser application.

d. Terminal and Midcourse Defense technology effort includes continuation of terminal and midcourse defense technology evaluation and construct requirements integration for terminal distributed concepts, non-nuclear kill, and high endo and exo regimes. Other requirements to be addressed include redundancy, data association, trilateration tracking, probe/D^3 functions and handover, battle management and engagement logic.

3. High Energy Laser Components - (Task I) - Evaluate high energy repetitively pulsed laser propagation and specifically the capabilities of special optics techniques as applied to pulsed lasers. Also, to assist in implementation and testing of a high power demonstration of optics system. Specific efforts will include range layout, measurement of beam quality, etc., and analysis of data. (Task II) - Assist the Army in defining requirements for a high energy laser (HEL) system. General categories of requirements will have been identified already; this task will be for the purpose of determining specific items and capabilities which a tactical system must have. The effort will involve trade-off studies for different approaches, investigation of other service programs which bear on Army problems, and/or development of new ideas as necessary. Lincoln Laboratory has a unique capability to perform evaluations and design experiments in the areas of HEL propagation and in pointing and tracing for HEL systems. There exists at Lincoln Laboratory a wealth of expertise in these two areas and in related areas. Lincoln personnel have been intimately involved in all technical aspects of the overall Department of Defense laser effort, and therefore, this group can make an immediate and telling impact on the Army's HEL program. In addition, Lincoln Laboratory does not compete with contractors and so can evaluate ideas and approaches without prejudice. No other group, in industry or in government, has the background and expertise which Lincoln Laboratory can bring to bear on the tasks outlined in this description.

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

4. Kwajalein Missile Range (KMR) Support -

a. The Kiernan Reentry Measurements Site (KREMS) radar were developed by Lincoln Laboratory under Advanced Research Projects Agency (ARPA) sponsorship, and by direction of the Under Secretary, Defense Research and Engineering (USDRE), transferred to the Kwajalein Missile Range Directorate (KMRD) of the Ballistic Missile Defense Systems Command (BMDSCOM) in 1968 to support the National Range mission.

b. Lincoln Laboratory serves as Scientific Director of KREMS at KMR, and they are considered predominant experts for this particular task. They provide the technical management of the overall KREMS instrumentation system which includes three very unique and complex radar sensors and their associated display, control, and recording equipments in support of mission operations. Additionally, Lincoln Laboratory performs the offsite mission test planning, radar systems engineering, and data reduction and reporting.

c. Their overall efforts are pursuant to the objective of providing an integrated operation with multiple sensors whose total spectrum of capabilities will allow the collection of data for both strategic offensive and defensive weapon system development and which will function as an extremely flexible test bed for experiments on Advanced Ballistic Missile system techniques. The instrumentation system at KREMS is a continually evolving one due to the emphasis on using, in real time, the capabilities of the individual sensors to maximize the total effectiveness for data collection.

d. KMR does not have the in-house capability to perform this effort. If the effort were sought from other contractual sources, the expertise gained at Lincoln Laboratory, and nurtured during the last 12 years at government expense, would be sacrificed and an unacceptable degradation in the quality and efficiency of support provided testing programs would occur.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE	FY 1980 ESTIMATE
MITRE CORPORATION				
Research, Development, Test, and Evaluation, Army				
3.31.45.A USAREUR Command, Control, and Information Systems	-	-	-	-
6.27.01.A Communications Electronics	26	170	180	150
6.37.04.A Unattended Ground Sensors	139 *	100	175	200
6.37.07.A Communications Development				
6.57.13.A Battlefield Systems Integration	1,885	1,785	2,685	2,785
Total RDTE, Army	2,059	2,505	3,040	3,135
Operations and Maintenance, Army				
395781 US Army Communications Command	403	420	472	525
393134 EUCOM Project	400 ***	560 ***	595	630
392012 ANMCC Improvement Plan	-	190 ***	200	210
208015 Project AVID GUARDIAN	-	80	-	-
Total O&M, Army	403	500	1,267	1,365
Total Army	2,462	3,005	4,307	4,500
Total Army Included in Other Ceiling	604	750	300	300
Total MITRE Corporation	3,066	3,755	4,607	4,800

* FY 1977 - Advanced Research Project Agency (ARPA) ceiling.
** FY 1977 - Includes Air Force ceiling; FY 1979 and FY 1980 Air Force ceiling.
*** FY 1977 - Air Force ceiling; FY 1978 - request forwarded to Air Force.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

Remarks: MITRE Corporation technical support to the Army is required as follows:

1. United States Army Europe (USAREUR) Command, Control and Information System (CCIS) -

a. Under guidance of the Command and Control Division, the MITRE Corporation will assist the Command and Control System Project Office, Headquarters, USAREUR and Seventh Army in the implementation of its CCIS.

b. The master plan provides for implementation of CCIS during the period FY 1977-1984. The master plan consists of a time-phased series of steps which accomplish the analyses and operational demonstration and testing needed to validate the CCIS conceptual design. A key element is the establishment of a test bed which will provide the capability for these tests and demonstrations. This test bed will serve to guide the development and acquisition of the CCIS and will eventually represent an initial operational capability. This test bed implementation will be preceded by analyses of USAREUR transactions (decisions and information exchange) and supporting communications/automatic data processing requirements.

c. A study was completed in FY 1977 and final report and master plan prepared for the development and acquisition of the USAREUR CCIS. The report and master plan were submitted to the Department of the Army for approval. The MITRE Corporation supported the USAREUR study team in the analyses and preparation of the final report.

d.

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

2. Communications Electronics - The Communications Research and Development Command (CORADCOM) Tactical Information Distribution System (TIDS) Testbed project continues to evolve rapidly and is likely to undergo additional modifications on short notice. Quick response to changing directions is an important requirement. MITRE/METREK - with a small group currently on the project and a pool of personnel with recent experience on related United States Army Europe (USAREUR) projects - is in a position to provide responsive support to CORADCOM.

a. CORADCOM requires a multi-discipline support group which has professionals experienced in Army operations, automated data processing and communications.

b. MITRE/METREK has unique qualifications for planning the development and utilization of the TIDS testbed.

c. Complete objectivity is especially important in an activity such as the present one, where it is necessary to specify the type and quantity of hardware to be acquired based on requirements arising out of CORADCOM's missions and roles.

d. MITRE/METREK is a not-for-profit Federal Contract Research Center, and is precluded from engaging in manufacturing activities and from accepting work from commercial firms.

e. On this project, which involves many agencies and constantly changing personnel, continuity of effort is at a high premium. The Army Communications Command, recently assigned as the implementation agency, will have a contingent of new people on the project. Thus, the MITRE/METREK group will represent an element of continuity through the next several stages of the design cycle.

f. The TIDS testbed will be operational through the early 1980's; thus, in order to avoid obsolescence at the start, the latest state-of-the-art technology must be used to assure compact design and to allow a margin of growth. MITRE/METREK is unique in the knowledge and ability to utilize such information.

3. Unattended Ground Sensors - Funds are required during FY 1979 for continuation of support commenced by the MITRE Corporation in FY 1972. MITRE Corporation will continue to provide technical support of advanced development efforts to insure that design of evolutionary components and end items are responsible to system requirements in a cost effective manner and are

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

compatible with configuration items in the basic system. Due to familiarity with the Remotely Monitored Battlefield Sensor System (REMBASS) program over 7 years (FY 1972-1978), no alternative in-house or contractor capabilities can be substituted for MITRE Corporation technical support during FY 1979. Systems engineering support by the MITRE Corporation during this year will be particularly important in new technology to be applied to REMBASS.

4. Battlefield Systems Integration -

a. The MITRE Corporation battlefield systems integration program, begun in FY 1976, consists of creative, interdisciplinary design work treating the Army in the field as a total and cohesive system, integrated so that combat subsystems such as ground forces, organic aerial units and appropriate components of the Tactical Air Command of the US Air Force work in a common framework, with each element configured to maximize total system capabilities. There are two complimentary thrusts of activity carried on simultaneously.

(1) The first is the architecture or design of an overall battlefield systems concept. The basis for the design is the conviction that technology is now at hand to permit battlefield data collected by any sensor to be communicated in real time to command and control centers where it is instantaneously sorted, collated, displayed and transmitted digitally to maneuver or fire units who will act on it. Such a master design to guide the Army's Research and Development (R&D) effort will optimize weapon, C^3 and sensor development. New developments that are only marginally effective when viewed in the context of an integrated battlefield system can be screened out. A synergistic effect will be achieved in the R&D effort by permitting new equipment to realize its full technological potential through interoperability with communications, command and control, target acquisition, or other weapons operating in the system.

(2) A second line of effort focuses on near-term improvements to the Army's combat capability by optimizing tactical subsystems such as field artillery, night combat, air defense and aviation. Each of these functional subsystems have shortfalls that could be corrected by a searching battlefield systems analysis. As high payoff areas for short term correction are positively identified, teams of engineers and analysts will develop fully documented program recommendations to give higher priority to certain lines, modify or terminate others, provide guidance for product improvements and input to research and technology development.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. The MITRE Corporation is considered to be uniquely qualified for the Army's pioneer systems architecture and design program for several reasons. MITRE has a widely accepted reputation for quality technical work in target acquisition, telecommunications and data processing. MITRE has extensive experience in comprehensive battlefield command and control systems, a level of technical sophistication and tactical application that has never been attempted in the Army before. MITRE's experience has been gained in such projects as Joint Tactical Information Distribution System, World-Wide Military Command and Control Systems, and extensive work for the Air Force in tactical command and control systems. Interoperability of tactical Army-Air Force systems is considered vital and MITRE will contribute synergistically. Finally, MITRE has on board the requisite scientific talent, both in terms of numbers and experience to undertake an Army Battlefield Systems Integration program without undue delay for recruiting or education in defense systems.

c. Because of the scope and complexity of the systems architecture task, encompassing all tactical developments and including close interface with Air Force capabilities, an experienced in-house team could not be assembled to accomplish this task. There is no precedent in the Army for an undertaking of this magnitude.

d. In summary, MITRE will provide total system design and architecture support plus command subsystems analysis. In FY 1977 development of master battlefield systems integration plan was initiated to allow demonstration of incompatibilities between/within functional combat subsystems. The focus was on target acquisition, communications, command and control, and weapons engagement systems specifically. FY 1978 will continue emphasis on system architecture for the target acquisition, C^3, weapon engagement command and control and assessment subsystems. Implementation of the systems engineering phase will be initiated and the architecture effort extended to air defense, aviation, etc., designed to integrate overall systems. The work will be verified by intensive subsystem studies and tactical testing/experimentation. The FY 1979 program should complete the master systems integration plan (system architecture) and begin computer simulations and field experiments to verify that it validly represents the Army in the field. Field experimentation oriented towards testing comparability between system architecture and automated command operations, fire control, target acquisition, and weapon engagement systems currently under development. Cost versus performance evaluations at mission area level. FY 1980 program will design and conduct field experiments/tests to evaluate interoperability of developing systems first within their respective functional areas, and then in terms of the total system (criteria for these tests will be the essential functional interrelationships developed as framework of system architecture). Increase in effectiveness of total system measured as each developing system is integrated, and remaining shortfalls in mission capabilities identified.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

5. US Army Communications Command (OMA funded) -

a. Since FY 1973, the MITRE Corporation has provided systems engineering support to Army Base Information Transfer System (ARBITS) resulting in the feasibility of providing integrated multimedia interactive Communications-Electronics (C-E) systems to meet Army needs, a system design of testbed facilities, a definition of test scope, evaluation criteria, resource requirements, a published Subsystem Project Plan (S/PP) for Fort Bliss, Texas, a published applications document and a cost benefit/risk analysis.

b. In FY 1977, MITRE performed program definition support, technical risk assessment of potential testbeds, testbed system engineering, costed and designed a coaxial cable network for the new Walter Reed Army Medical Center (WRAMC), and published a S/PP for WRAMC and Aberdeen Proving Ground (APG), Maryland mini-testbeds approved by the Office of the Secretary of Defense on 4 August 1977.

c. Results will be used in FY 1978 to begin system specifications for the two testbeds (WRAMC and APG). MITRE will also provide technical support to update the S/PP, prepare additional program management documentation and the detailed design of the testbed applications.

d. In FY 1979, MITRE will perform system engineering technical support to the Army for testbed and implementation; provide general and specific engineering support for the technical performance of the testbed systems within the parameters established by the Army, technical initiative required to complete systems procurement for the first-phase testbed implementations; assist in preparing requests for proposals, evaluation criteria, source selection team support to this headquarters in negotiations, and review of contractors initial design efforts for hardware and software; provide assistance to Army agencies and commands identified with approval, funding, procurement, installation, operations, test and evaluation of the testbeds. Knowledge of state-of-the-art in all fields related to ARBITS user requirements and broadband multimode transmission is required. Transfer of information developed in previous years by MITRE into system procurement specifications will require fewer man years and less time than any other alternative. MITRE access to propriety information and industry proposals are keys to the solution of best technology and hardware.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

6. EUCOM Project (OMA funded) -

a. Previously the MITRE Corporation supported Headquarters United States European Command (USEUCOM) and the Army in developing architectural options and associated gross costs for a HQ USEUCOM command center.

b. There are ongoing actions within the Department of Defense (DOD) which may influence future implementation concepts. In response to DOD decisions in this regard, MITRE, under the direction of the US Army Communications Command (USACC), will evaluate the impact of these decisions on the HQ USEUCOM Command Operations Center (COC) architecture developed in FY 1977 and modify the architecture accordingly. Based on the selected and approved architecture, MITRE will assist the USACC in modifying and/or developing detailed facility layouts, in delineating interface requirements between EUCOM and external elements, in identifying and developing specification for survivability requirements, and in developing a plan for implementing the

c. FY 1979 request is for MITRE support to USACC and HQ USEUCOM in the preparation of transition plans that will support the in a manner which will minimize operational interruptions and degrations. MITRE will assist the USACC in reviewing the emerging technical documentation produced by contractors that will document the detailed specifics of the facilities, the equipments and the interfaces, making recommendations as necessary. MITRE will also assist in the development of test plans and establishing testing criteria for each level of system/subsystem testing. This will include the design of operational tests to determine the operational adequacy of the facility and system performance.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

d. Quick response to changing directions is a prime requirement. The MITRE Corporation - with a small ground currently on the project at the United States European Command (USEUCOM) Headquarters and a pool of personnel with recent experience on related United States Army, Europe (USAREUR), United States Air Force in Europe (USAFE), and Defense Communications Agency (DCA) projects in Europe - is in a position to react rapidly to US Army Communications Command (USACC) requests for augmentation of support.

e. The MITRE group at HQ USEUCOM is multi-discipline, including professionals experienced in automated data processing, communications, and facility layout. To satisfy other needs of the USEUCOM Project, MITRE can draw on engineers experienced in the design of complex systems, on cost analysts, and on specialists in managing the acquisition of large systems.

f. On this project, which involves many agencies and constantly changing personnel, continuity of effort is at a pre[redacted]. The USACC, recently assigned as the implementation agency, will have a contingent of new people on these projects. The m[redacted]ty of USEUCOM personnel on the project will rotate this summer to be replaced by new people. Thus, the MITRE group will rep[redacted]nt an element of continuity through the next several stages of the design/implementation cycle.

7. Alternate National Military Command Center (ANMCC) Improvement Plan (OMA funded) -

a. Previously MITRE has supported the DCA in the development of conceptual alternatives for the Communications-Electronics (C-E) portions of an austere command center and for selected technical analyses of initial communications capabilities.

b. FY 1979 request is for MITRE to provide technical assistance to the USACC in the form of system engineering studies, analyses, and test planning. These efforts will include, but not be limited to, nuclear environment predictions, timeline analysis of the required mission functions versus the proposed scenarios, overall evaluation program and assessment of the C-E system/subsystem survivability/availability for the full spectrum of operational alternatives under consideration.

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

8. Project AVID GUARDIAN -

a. Project AVID GUARDIAN, established in 1974, has been conducting studies to develop concepts for tactical employment of unattended ground sensors in the central region. The Federal Republic of Germany, United Kingdom, Government of France, and United States have provided representatives to this project; the Defense Advanced Research Project Agency (DARPA) has provided a full-time on-site scientist. The project was initially scheduled for completion on 31 July 1977. Recently, the Deputy Commander-in-Chief, Europe invited the other nations and DARPA to continue participation in the project for another year to allow completion of those tasks originally identified for investigation, but not completed, and to enable national representatives to validate project conclusions. The Federal Republic of Germany and the United Kingdom accepted; the Government of France and DARPA declined.

b. Continuation of the project requires the services of a MITRE scientist to provide technical capability to analyze the operational requirements for a data-link subsystem (as part of a remote ground sensor system); to analyze sensor message flow rates, computer assisted data processing and data display requirements; and to provide an interface between AVID GUARDIAN and the Continental United States Research and Development agencies involved in the US Army's remote ground sensor development program (Project REMBASS).

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
($ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE	FY 1980 ESTIMATE
TOTAL PROGRAM SUMMARY BY APPROPRIATION				
Research, Development, Test, and Evaluation	13,579	14,546	16,917	17,841
Operations and Maintenance	403	500	1,267	1,365
Total Federal Contract Research Center Requirement	13,982	15,046	18,184	19,206
Subcontract effort excluded from this amount	13,332	11,701	12,453	11,772

Section 7

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

PART 1. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities determined to be necessary for the performance of a contract for a Military Department for research and development, may be constructed by or furnished to the contractor and funded from appropriations available for research, development, test, and evaluation. The Congress enacted this legislation, now 10 USC 2353, in 1956. This policy is executed through DOD Directive 4275.5. Under this policy, construction of R&D projects for contractors up to $500,000 is normally approved by the Major Command concerned; the Service Secretary or such delegate as he may authorize approves projects up to $1,000,000; and the Under Secretary of Defense for Research and Engineering approves projects over $1,000.000. The table below provides a summary listing of all such projects accomplished in FY 1977 and planned in FY 1978, FY 1979 and FY 1980:

Facility/Equipment	RDTE Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars) FY 1977	FY 1978	FY 1979	FY 1980
SECTION I							
Projects Accomplished or Underway							
Negative							
SECTION II							
Projects Planned or Projected							
Negative							

PART 2. UTILIZATION OF RDTE APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

Chapter 251 (which was approved by the GAO as DOD Instruction 7220.5) provides that RDTE appropriations may finance the development, design, purchase and installation (including directly related foundations, shielding, environmental control, weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test, and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is $75,000 or more, accomplished in FY 1977 and planned in FY 1978, FY 1979 and FY 1980:

Facility/Equipment	RDTE Project Number	Location	Total Obligational Authority (Thousands of Dollars) FY 1977	FY 1978	FY 1979	FY 1980
		SECTION I				
		Projects Accomplished or Underway				
a. Install 3000-Ton Hydraulic Press	1W663607D640 1W663608D160 1W663607D627 1W161102AH56 1W662603AH78	Picatinny Bldg 3150	200	-	-	
b. Install Test Chamber Rain-Sun	1F663622AJ29	Picatinny Bldg 3100	153	-	-	-
		SECTION II				
		Projects Planned or Projected				
		Negative				

PART 3. UTILIZATION OF RDTE APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for $75,000 or less are funded from RDTE appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DOD Appropriation Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 1977, and the estimated amounts planned for FY 1978, FY 1979 and FY 1980. All minor construction must result in a complete and usable facility. In no event are two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDTE, ARMY

FY 1977	FY 1978	FY 1979	FY 1980
1,548	1,360	1,360	2,283

Section 8

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
PROJECT DATA FOR CONSTRUCTION AT GOVERNMENT-OWNED FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

NOT APPLICABLE

Section 9

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY
FLIGHT SIMULATOR PROGRAMS
($ in Thousands)

Program Element/Project	FY 1977	FY 1978	FY 1979	FY 1980	Descriptive Summary Reference
6.32.16.A/DB34 - Rotor System Integration Simulator	-	-	400	1,200	249
6.32.16.A/DB35 - Aviator Training Research Simulator	-	-	-	2,900	249
6.32.16.A/DB39 - Flight Simulator Components	882	1,004	-	690	249
6.42.17.A/D275 - Synthetic Flight Training System	5,363	5,671	4,590	13,497	529

OSD OVERVIEW OF TERMINALLY GUIDED SUBMUNITIONS (TGSM)

Purpose and Value to the Department of Defense

A major deficiency in our conventional forces is the lack of enough effective weapons to destroy armor targets at ranges greater than (km) behind the forward edge of the battle area. This deficiency can be corrected by improved anti-armor systems that can provide the Air Force with "multiple kills per pass" or "stand-off" capability and the Army with a terminal homing option for the General Support Rocket System (GSRS) or an even longer range surface-to-surface missile system to increase kill probability against massed armor, artillery and air defense sites. An approach for an early technology demonstration for countering this deficiency is the Defense Advanced Research Project Agency (DARPA) ASSAULT BREAKER concept for delivery of

For direct TGSM delivery the Air Force requires dispensing systems for use with high-performance aircraft at low altitude while the Army's need demands packaging in and dispensing from ballistic rockets, guided missiles and artillery projectiles. In either case, the basic submunition may be essentially the same, and the development programs provide an opportunity for substantial commonality of concept and components.

Inter-Relationship of the Programs

The Air Force development program is being pursued primarily in Program Element 6.36.09.F, Advanced Attack Weapons; Project #2369, Wide Area Anti-Armor Munitions (WAAM). This program has a high priority within the Department of Defense to provide an early direct delivery capability to the Tactical Air Force. Funding was provided in FY 1978 ($5.1 million) to initiate component demonstrations of several snbmunition concepts, and in FY 1979 ($26.1 million) to concentrate on selected component development and testing. The Air Force investigations emphasized millimeter seeker technology.

Army activities for TGSM was performed under Program Element 6.23.03.A, Missile Technology, in FY 1978. In FY 1979 work will start within the GSRS program, Program Element 6.33.03.A, Project #D216. $8.0 million is requested in this program element in FY 1979 to commence concept definition and advanced development efforts. The Army program is based almost exclusively on infrared seeker application to TGSM.

The Air Force, Army, and Defense Advanced Research Project Agency (DARPA) are jointly pursuing the ASSAULT BREAKER program in Program Element 6.33.20.A (ASSAULT BREAKER) and 6.46.13.F (NATO Munitions). The structure and management of this program are such that it primarily draws from and builds on the Army and Air Force terminally guided submunitions (TGSM) projects described above. The emphasis of the ASSAULT BREAKER effort is an advanced technology demonstration of all of the components of target acquisition, command and control, midcourse guidance, and terminal homing using TGSM against anti-armor at ranges of approximately kilometers. This advanced technology demonstration will provide experimental information of use to the General Support Rocket System, Wide Area Anti-Armor Munitions, and of value to proof-of-principle of a potential new surface-to-surface weapon.

The total Department of Defense (DOD) FY 1979 support of technology base and advanced development efforts on potential TGSM carrying vehicles will be: DARPA, $5.9 million; Army, $8 million; and Air Force, $57.6 million. Of this $71.5 million, about $25-30 million is for research and development on terminal homing payloads. The remainder is for system unique launcher, propulsion, carrier vehicle guidance, airframe, and dispenser investigations.

Department of Defense Management

DOD has long recognized the utility and potential effectiveness of guided submunitions, but not until FY 1978 and FY 1979 have we had sufficient demonstrations of the technology to justify aggressive development efforts. The Air Force and Army pla high priority on this area. DOD will actively manage the programs to assure that the Services achieve their goals in the earliest possible time while avoiding duplication of effort. These programs promise to provide the highest leverage which we can now envision to overcome the quantitative superiority of WARSAW PACT armor.

OSD OVERVIEW OF BATTLEFIELD TARGETING, RECONNAISSANCE AND SURVEILLANCE

Purpose and Value to the Department of Defense

A major deficiency in our ability to establish a strong defense in the NATO War scenario is the growing imbalance of numerical force levels in favor of the WARSAW PACT. This deficiency must be corrected in part by the innovative employment of superior technology in the area of surveillance, reconnaissance and targeting over the battle area and extending well behind its forward edge. Surveillance must provide the broad indications of buildup and movement of WARSAW PACT forces leading to the earliest possible warning time. Effective, timely warning will require increasingly effective use of tactical and national assets including more efficient methods and doctrine for the correlation and dissemination of data. Reconnaissance must provide the

detection, classification and tracking of specific WARSAW PACT force elements as appropriate for the re-deployment of defensive forces and for combat. The reconnaissance function must be exercised in a hostile electromagnetic environment, so that high leverage attends the proper mix of passive and active sensor systems. Battlefield targeting provides an even higher leverage capability for directing superior firepower on the enemy, provided that solutions are found to the real-time combination under hostile conditions of reconnaissance sensor systems, multi-source data correlation, and tactical command and control.

Inter-Relationship of the Programs

The sensor programs include the following active and passive sensors:

Title	Program Element	Service
Unattended Ground Sensors (UGS)	6.47.04.A	Army
Counter Mortar Radar	6.47.29.A	Army
Remotely Piloted Vehicle (RPV)	6.47.30.A	Army
Counter Battery Radar	6.47.31.A	Army
Standoff Target Acquisition System (SOTAS)	6.47.48.A	Army
Reconnaissance RPV	2.72.45.F	Air Force
Sidelooking Airborne Radar	6.37.46.F	Air Force
Low Visibility Moving Target Acquisition	6.37.47.F	Air Force
Tactical Sigint System	6.37.52.F	Air Force
High Accuracy Targeting System	6.47.41.F	Air Force
Precision Location Strike System	6.47.42.F	Air Force
Tactical Surveillance System	6.37.30.A	Army
Tactical Surveillance System	6.47.40.A	Army

The multi-sensor correlation programs include:

Battlefield Systems Integration	6.57.13.A	Army/Air Force/Defense Advanced Research Program Agency
All-Sources Analysis Center	6.37.45.A	Army
All-Sources Analysis Center	6.47.45.A	Army

The command and control programs include:

Title	Program Element	Service
Tactical Operations System	6.37.22.A	Army
Tactical Operations System	6.47.49.A	Army
Joint Tactical C^3	6.47.12.A	Army
Tactical Airborne Control System	2.74.12.F	Air Force
Tactical Fire Direction System	2.37.26.A	Army
Joint Interoperability of Tactical Command and Control Systems	6.47.79.A	Army

Department of Defense Management

The programs encompassed by this overview are conducted with a number of mission areas in both the Air Force and Army, but they have the common feature of applicability to surveillance, reconnaissance and targeting in the battlefield arena. The Department of Defense will intensify its management of these programs as an integrated group in order to realize the high payoff potential associated with the development of the proper mix of active and passive sensors, together with means of correlating their outputs and providing useful data to tactical units on the appropriate time scales.

OSD OVERVIEW OF DEFENSE SUPPRESSION

Purpose and Value to the Department of Defense

Tactical aircraft face a formidable threat while performing air superiority operation over the battle area and during attacks against high value land and sea based targets. That threat is provided by a sophisticated network of radar directed air defense artillery, surface-to-air missiles and interceptors. The purpose of the Defense Suppression mission area is to develop tactics and appropriate lethal and non-lethal systems to avoid, degrade or destroy these defenses and thereby simultaneously reduce attrition and increase the effectiveness of our aircraft.

Specific needs in the lethal area include:

a. The ability to deliver defense suppression weapons from low, as well as high flying aircraft to minimize exposure to enemy defenses.

b. A battlefield anti-radiation missile (ARM) to counter the ZSU-23 and SA-8. Many attack aircraft will be capable of carrying this "lower" cost ARM thereby increasing force effectiveness at an affordable cost.

Specific needs in the non-lethal area include:

a. The ability to accurately locate and target WARSAW PACT air defenses for lethal weapon attack.

b. Improved self-protection warning/jamming systems for fighter and attack aircraft.

c. The disruption of enemy combat operations through location and jamming of WARSAW PACT command, control and communication networks.

d. Lower aircraft signatures to reduce explosure to radar and electro-optically controlled defensive weapons.

Inter-Relationship of the Programs

A strong interface is being maintained between the lethal and non-lethal areas. When defenses can be identified and located, lethal weapons such as the Navy's High Speed Anti-Radiation Missile (HARM), Program Element (PE) 6.43.60.N and the Air Force's GBU-15 glide weapon PE 6.47.33.F, will be employed to destroy the target. The Air Force Precision Location Strike System (PLSS), PE 6.47.42.F is being developed to locate the enemy's most deadly and difficult-to-jam radars. The combination of PLSS and lethal weapons will provide the capability for an all weather precision strike from stand-off positions. Electronic warfare jammers such as the Navy's EA6B, PE 2.56.74.N, and Air Force EF-111A, PE 6.42.20.F, are needed to screen friendly air operations from most hostile surveillance radars thereby reducing the number we must kill to a manageable quantity. The Navy's Advanced Self-Protection Jammer, PE 6.42.26.N, will be used to confuse and negate the fire control radars of the enemy air defense systems that manage to escape our destruction and screening efforts and attempt to engage our aircraft. Further, attempts are being made to draw Army target acquisition and engagement capabilities into a defense suppression role. Utilizing the Army's radar sensors such as Standoff Target Acquisition System, PE 6.47.48.A, and appropriate sensor fusion centers,

conventional artillery and the General Support Rocket System, Program Element (PE) 6.33.03.A, can be brought to bear on enemy air defenses located in the forward battle area. Provisioning the Army's attack helicopters with a self protect capability will also permit defense suppression raids prior to or in concert with the arrival of fixed wing aircraft. This development effort is being accomplished under Air Defense Suppression Systems, PE 6.33.07.A. Utilization of this combined massive firepower will enhance the survivability of tactical aircraft performing the close air support mission.

Department of Defense Management

Recognizing the importance of Defense Suppression to the success of tactical air operations, the Department of Defense is continuing to exercise firm management in this area. The High Speed Anti-Radiation Missile (HARM) program has been redirected this past year to be more responsive to the WARSAW PACT threat scenario. In addition the Air Force's outyear procurement of SHRIKE missiles has been adjusted downward to accommodate the planned employment of the more capable HARM with WILD WEASEL aircraft. The GBU-15 program also has been tasked to increase resistance to enemy countermeasure tactics and to demonstrate a lower altitude launch capability. The Air Force has been instructed to restructure the EF-111A program to a more efficient less costly schedule. Additionally, they have been instructed to defer those protection system developments of lesser priority in the total joint-Service defense suppression "mix".